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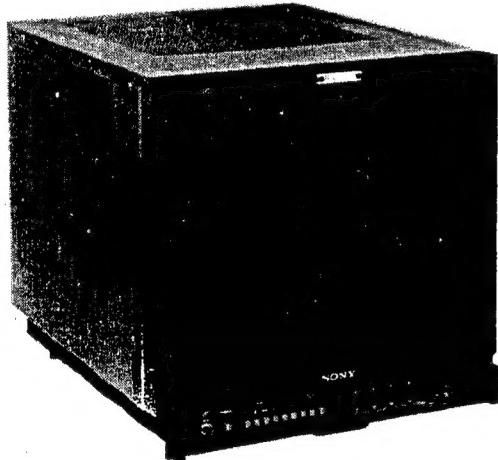
TRINITRON® COLOR VIDEO MONITOR

BVM-2010P

BVM-2010PD

BVM-2010PM

BVM-2010PMD



TRINITRON

OPERATION AND MAINTENANCE MANUAL

3rd Edition

Serial No. 2000831 and Higher(BVM-2010P)
(EBU N-10 LEVEL)

Serial No. 2000004 and Higher (BVM-2010PM)

Serial No. 2000040 and Higher (BVM-2010PD)
(EBU N-10 LEVEL)

Serial No. 2000001 and Higher (BVM-2010PMD)

Warning—This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Important—To insure that the complete system (including this peripheral) is capable of complying with the FCC requirements, it is recommended that the user make sure that the individual equipment of the complete system has a label with one of the following statements.

"This equipment has been tested with a Class A Computing Device and has been found to comply with Part 15 of FCC rules."

—Or—

"This equipment complies with the requirements in Part 15 of FCC rules for a Class A Computing Device."

—Or equivalent.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruits radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

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VORSICHT!!

Hinweis für den Benutzer

Das Gerät ist nicht für den Einsatz in Bildschirmarbeitsplätzen vorgesehen.

CAUTION!!

DO NOT USE THE EXTERNAL DEGAUSSER TO DEMAGNETIZE THE SCREEN.

BE SURE TO USE THE DEGAUSS SWITCH ON THE FRONT PANEL.

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NE PAS UTILISER DE DÉMAGNÉTISEUR EXTÉRITUR POUR DÉMAGNÉTISER L'ÉCRAN.

UTILISER LA TOUCH DE DÉMAGNÉTISATION (DEGAUSS) SUR LE PANNEAU FRONTAL.

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SECTION 1 OPERATION

1-1. OUTLINE

1-1-1. Features

The BVM-2010P/PM/PD/PMD is a color video monitor designed for critical evaluation of video signals in broadcasting stations and production houses.

High resolution picture

The Super Fine Pitch Trinitron picture tube (0.3 mm aperture grille) gives a high resolution, high contrast picture. Horizontal resolution is more than 900 TV lines at the center of the picture.

Stabilized color temperature

The newly-developed beam control circuit maintains the color temperature constant for a long period of time.

Split screen for precise picture confirmation

The lower half of the picture can be displayed in monochrome mode while the upper half is displayed in color mode. This facilitates confirmation of the luminance and chrominance channels, evaluation of the noise in chrominance or luminance channel, etc.

Blue only mode for precise evaluation of noise component

In blue only mode, an apparent monochrome display is obtained with all three control grids driven with a blue signal. This facilitates color saturation and phase adjustments and observation of VTR noise.

Easy and precise convergence adjustment

The convergence can be adjusted at 15 points of the screen. This system facilitates adjustment of the peripheral areas of the screen.

Digital video input connectors (Only for the BVM-2010PD/PMD)

The BVM-2010PD/PMD is equipped with two digital video input connectors which make it possible to monitor the digital video signals by connecting the Sony 4:2:2 component DVTR systems.

Other features

- Three color standards selectable using the optional plug-in type decoder boards
- Picture set-up function facilitating adjustment of the monitor reference black for the black level of an incoming video signal
- Pulse cross function for simultaneous checking of the horizontal and vertical sync signals or VITS (Vertical Interval Test Signal)
- Built-in crosshatch and 100% white signal generators facilitating monitor set-up
- VITC (Vertical Interval Time Code) display possible using the optional VITC reader board
- Auto chroma/phase adjustment, auto white balance adjustment etc. are possible using the optional auto set-up adaptor.
- Precise setting of black level of the monitor is possible using the optional black level signal generator.

- A drawer containing convergence, white balance and preset controls, and other function selectors
- Auto and manual degaussing
- Three-position AFC switch
- Overdrive protection circuit to protect against picture tube damage
- EIA standard 19-inch rack mounting possible using the optional rack mount kit

1-1-2. Options

Model No.	Product name	Board name	Use
BKM-1410	NTSC ADAPTOR	BC	Decoder board for NTSC color system
BKM-1411	NTSC COMB ADAPTOR	BB	Comb filter board for NTSC color system
BKM-1412	NTSC COMB ADAPTOR	BT	Dynamic Comb filter board for NTSC color system
BKM-1420	PAL ADAPTOR	BD	Decoder board for PAL color system
BKM-1421	PAL-M ADAPTOR	BM	Decoder board for PAL-M color system
BKM-1422	PAL COMB ADAPTOR	BT	Comb filter board for PAL color system
BKM-1430	SECAM ADAPTOR	BE	Decoder board for SECAM color system
BKM-1440	RGB/COMPONENT ADAPTOR	BF	Decoder outputs of RGB or component signals
BKM-1460	VITC ADAPTOR	BL	Reader of Vertical Interval Time Code
BKM-1470	SAFE AREA DISPLAY	BQ	For displaying the safe area
BKM-1480	BLACK LEVEL SIGNAL GENERATOR	BS	For generating black level singnals
BKM-2056	AUTO SET-UP ADAPTOR	BN BO	Auto chroma/phase adjustment, auto white balance adjustment, selection of color temperature
BKM-2085 -20	DIGITAL 4:2:2 SERIAL INPUT KIT	BA3 BV	For input of the component digital video signal
BKM-2090 -20	D-2 SERIAL INPUT KIT	BA3 BU	For input of the composite digital video signal
BKM-2000	RACK MOUNT KIT	—	For EIA standard 19 inch rack mounting

Combinations of the optional boards

The BVM-2010P/PD is supplied with the BD circuit board (PAL color system decoder), while the BVM-2010PM/PMD is supplied with the BM circuit board (PAL-M color system decoder). BVM-2010PD/PMD is also equipped with the BR circuit board (digital interface).

You can choose up to five optional B boards below including BD, BM or BR. The combinations of the B boards are limited depending on which boards can be accepted for each board compartment.

B1 through B5 compartments accept the boards as follows:

Board name (Function)	Compartment name				
	B5	B4	B3	B2	B1
BB (NTSC COMB FILTER)	X	O	O	O	O
BT (NTSC COMB FILTER)	O	O	O	O	O
BT (PAL COMB FILTER)	O	O	O	O	O
BC (NTSC DECODER)	O	O	O	O	O
BD (PAL DECODER)	O	O	O	O	O
BE (SECAM DECODER)	O	O	O	O	O
BM (PAL-M DECODER)	O	O	O	O	O
BF (RGB/COMPONENT)	X	X	O	X	X
BL (VITC)	X	X	X	O	X
BQ (SAFE AREA DISPLAY)	X	△	X	O	X
BS (BLACK LEVEL SIGNAL GENERATOR)	O	O	O	O	O
BN BO (AUTO SET-UP ADAPTOR)	O	O	X	X	X
BV (Digital 4:2:2 serial interface)	X	X	X	X	O
BU (D-2 serial interface)	X	X	X	X	O

O: acceptable

X: not acceptable

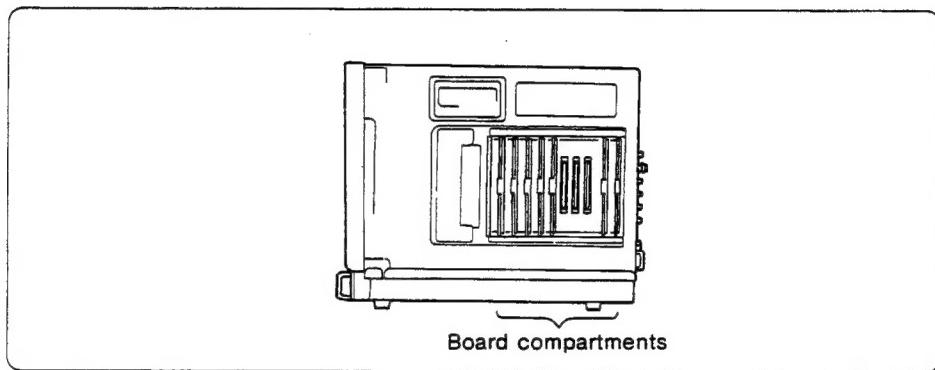
△: acceptable but the switch or control settings on the sub control panels cannot control the display.

Notes

- Insert BA, BG, BH, BI and BJ boards into their respective compartments of the same name.
- Do not leave B5 compartment blank. Insert one of the boards specified in the above table. If no board is inserted, the luminance/chrominance or luminance channel will not be activated in composite signal mode.
- Do not insert BD (PAL DECODER) and BM (PAL-M DECODER) boards simultaneously. This causes malfunction of the monitor.
- Do not insert BB (NTSC COMB FILTER) and BT (NTSC COMB FILTER) boards simultaneously. This causes malfunction of the monitor.

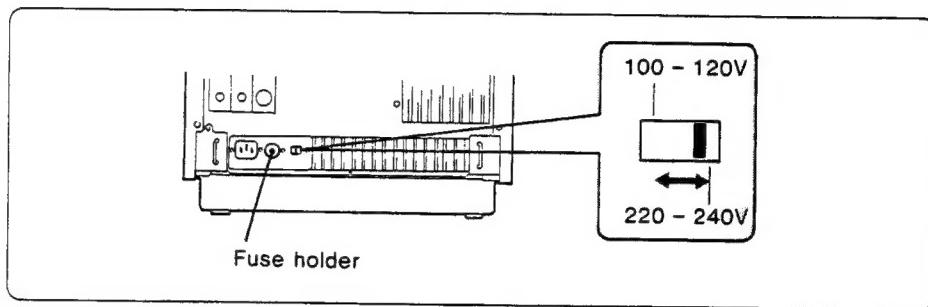
For details on installation, refer to the operation and maintenance manual of the optional board.

Right view (with the cabinet removed)



1-2. VOLTAGE SELECTION

The monitor operates on either 220 – 240 or 100 – 120V AC. Before connecting the unit to an AC outlet, make sure the voltage selector at the rear of the unit is set to the local power line voltage. Change the position of the selector if necessary.



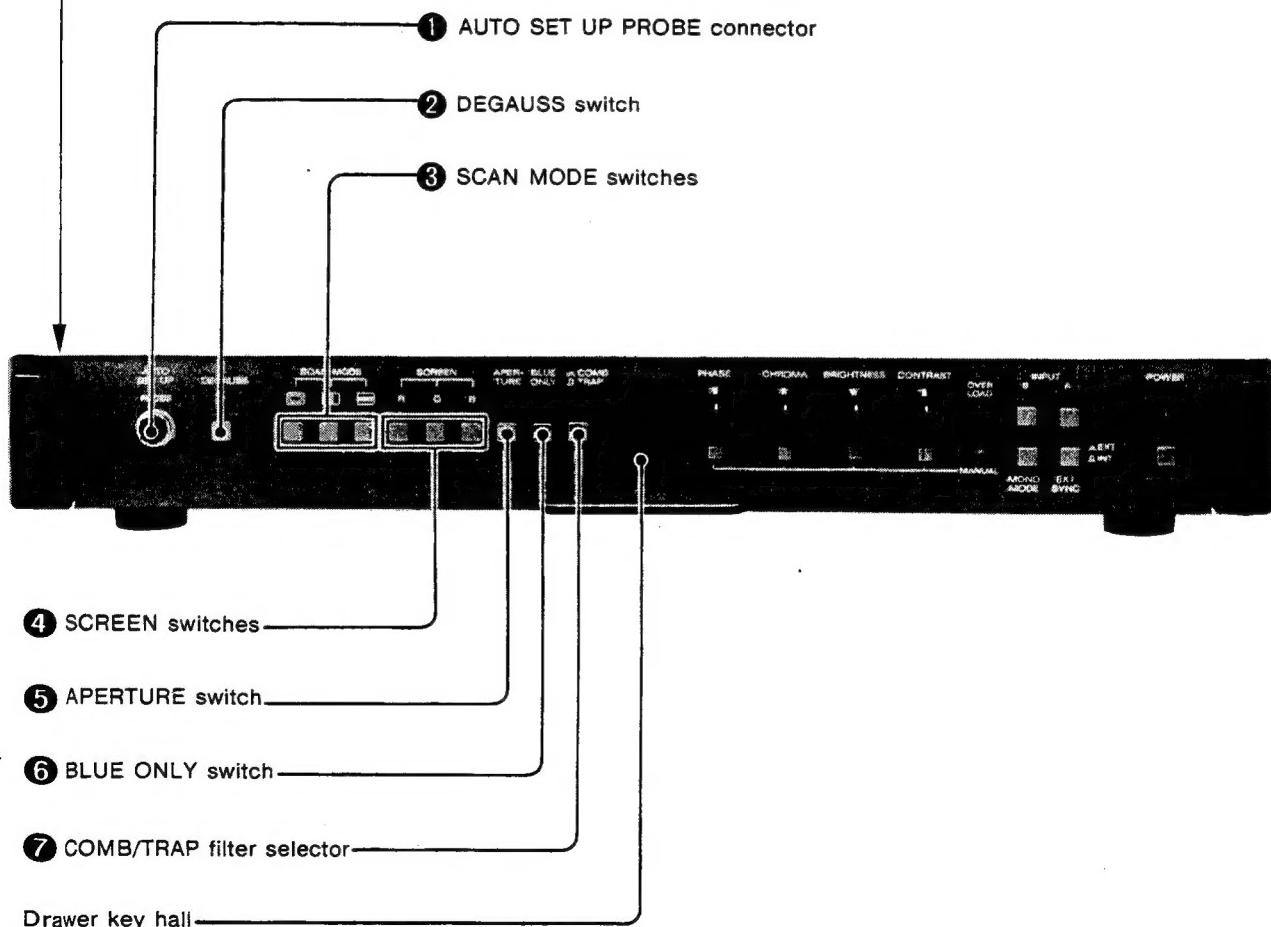
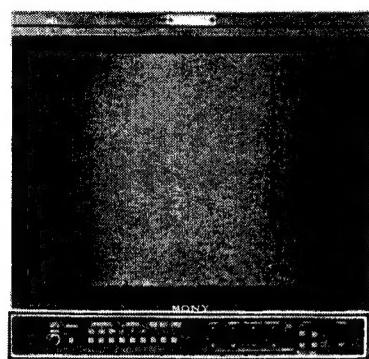
Note

Use a T2A/250V fuse for 220 – 240V AC operation, and a 4A/125V fuse for 100 – 120V AC operation. The appropriate fuse is installed at the factory in accordance with the voltage presetting. If you change the voltage selector setting, replace the fuse with an appropriate one.

1-3. LOCATION AND FUNCTION OF CONTROLS

1-3-1. Front Panel

Common to the BVM-2010P/PM/PD/PMD



① AUTO SET UP PROBE connector

Connect the optional BKM-2053 or BKM-2052 auto set-up probe.

② DEGAUSS switch

When the power is turned on, automatic degaussing is activated.

To demagnetize the screen manually, press this switch momentarily with the power turned on.

Wait for 5 minutes or more before activating degaussing again.

③ SCAN MODE switches

(underscan): Depress this switch for underscanning. The display size is reduced by approximately 3% so that four corners of the raster are visible.

(horizontal delay): Depress this switch to observe the horizontal sync signal. The picture is shifted horizontally and the horizontal sync signal is displayed in the left quarter of the screen. Picture brightness is automatically increased for easy observation.

(vertical delay): Depress this switch to observe the vertical sync signal. The picture is shifted vertically and the vertical sync signal is displayed near the center of the screen. Picture brightness is automatically increased for easy observation.

- A pulse cross is displayed by depressing both the and switches.
- To resume normal scanning, press to release the depressed switches.

④ SCREEN switches

The R, G and B switches turn the red, green and blue beams respectively on and off. To turn off the beam, depress the switch. To turn it on again, press to release it.

⑤ APERTURE switch

Normally keep this switch released. A flat frequency response is obtained. For aperture correction, depress this switch and adjust the APERTURE control inside the drawer. The boost frequency, 4.5 MHz or 6.5 MHz, can be selected with the S1 switch on the BG board.

At the 4.5 MHz position, the frequency response can be adjusted continuously with up to 6 dB boost at 4.5 MHz for subjective enhancement of the displayed picture.

At the 6.5 MHz position, the frequency response can be adjusted continuously with up to 6 dB boost at 6.5 MHz for compensation of the aperture loss of the CRT.

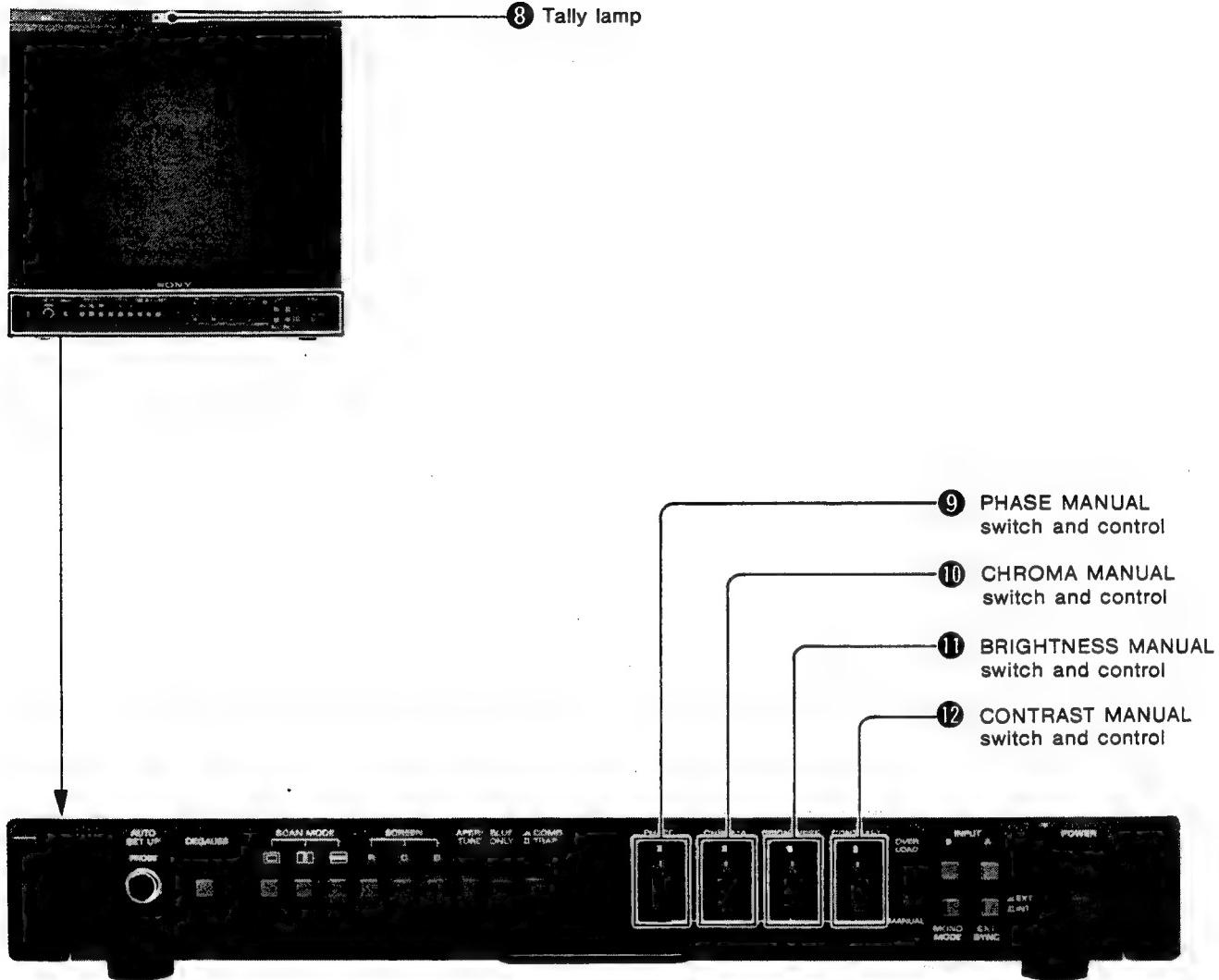
⑥ BLUE ONLY switch

Normally keep this switch released. Depress this switch to turn off the red and green signals. A blue signal is displayed as an apparent monochrome picture on the screen. This facilitates CHROMA and PHASE control adjustments and observation of VTR noise.

⑦ COMB/TRAP filter selector

This selector is effective for the NTSC color system only, with the BKM-1410 NTSC adaptor and the BKM-1411 or BKM-1412, NTSC comb adaptor installed. Depress the selector to activate the comb filter (COMB). Press to release it for the trap filter (TRAP).

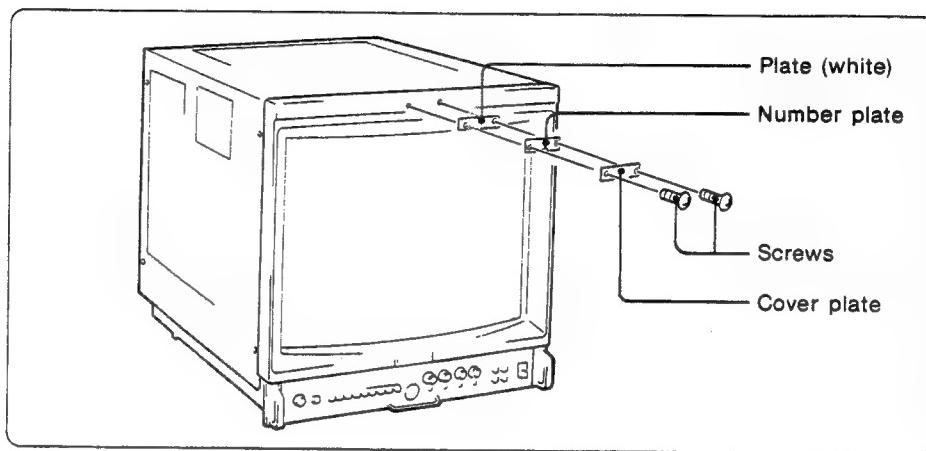
When the BKM-1411 or BKM-1412, NTSC comb adaptor is not installed, or when a color system other than NTSC is selected, the trap filter is always activated regardless of this selector setting.



⑧ Tally lamp

The lamp lights when No. 3 and No.8 pins of the REMOTE connector on the rear panel are shortcircuited.

Attach one of the supplied tally number plates instead of the model number plate, as illustrated below.

**⑨ PHASE MANUAL switch and control**

When this switch is in the released position, the subcarrier phase preset with the PRESET PHASE control inside the drawer is obtained. To adjust the subcarrier phase manually, depress this switch and turn this control.

(This control is not effective when the COLOR STANDARD PAL button is depressed and the PAL D/S selector is set to D, or when the COLOR STANDARD SECAM button is pressed.)

⑩ CHROMA MANUAL switch and control

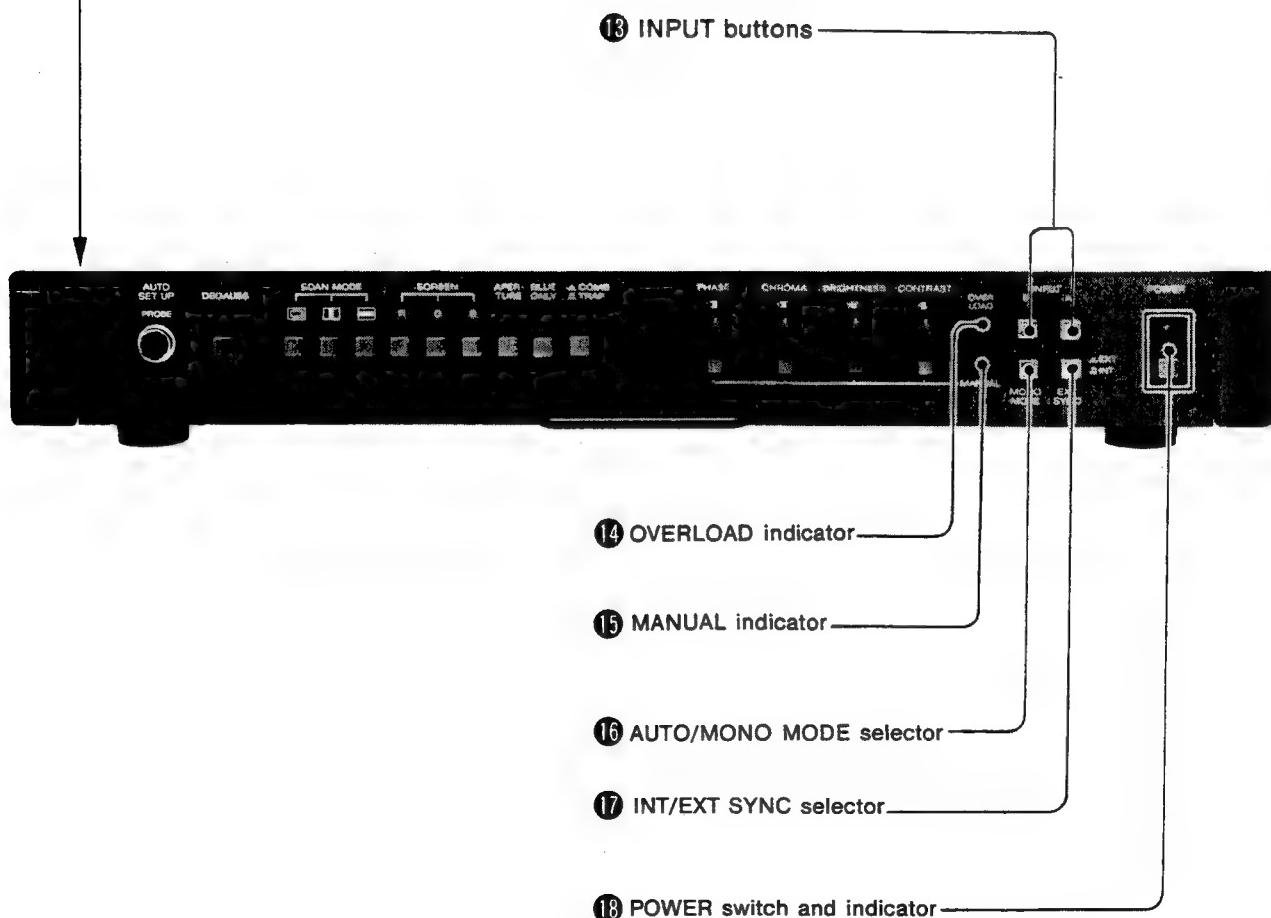
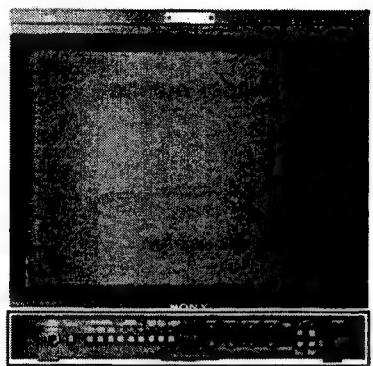
When this switch is in the released position, the color saturation preset with the PRESET CHROMA control inside the drawer is obtained. To adjust the color saturation manually, depress this switch and turn this control.

⑪ BRIGHTNESS MANUAL switch and control

When this switch is in the released position, the brightness preset with the PRESET BRIGHTNESS control inside the drawer is obtained. To adjust the brightness manually, depress this switch and turn this control.

⑫ CONTRAST MANUAL switch and control

When this switch is in the released position, the contrast preset with the PRESET CONTRAST control inside the drawer is obtained. To adjust the contrast manually, depress this switch and turn this control.



⑬ INPUT buttons
Select the input signal.

BVM-2010P/PM

- A: To monitor the signals connected to the VIDEO A INPUT connector, depress this button.
- B: To monitor the signals connected to the VIDEO B INPUT connector, depress this button and press the INPUT SELECT "B" button inside the drawer.

BVM-2010PD/PMD

- A: To monitor the signals being fed to the VIDEO A INPUT connector or DIGITAL A INPUT connector, depress this button.
- B: To monitor the signals being fed to the VIDEO B INPUT connector or DIGITAL B INPUT connector, depress this button and press the INPUT SELECT "B" button inside the drawer.

For details on input selection, refer to "INPUT SELECT buttons" on page 1-21.

⑭ OVERLOAD indicator

This indicator lights to warn of overdrive of the CRT.

⑮ MANUAL indicator

This indicator lights when any of the MANUAL switches ⑨ through ⑫ is depressed.

⑯ AUTO/MONO MODE selector

Normally keep this selector released (AUTO). Color or monochrome mode is automatically selected according to the presence or absence of color burst. Depress the selector (MONO) to display the monochrome picture.

⑰ INT/EXT SYNC selector

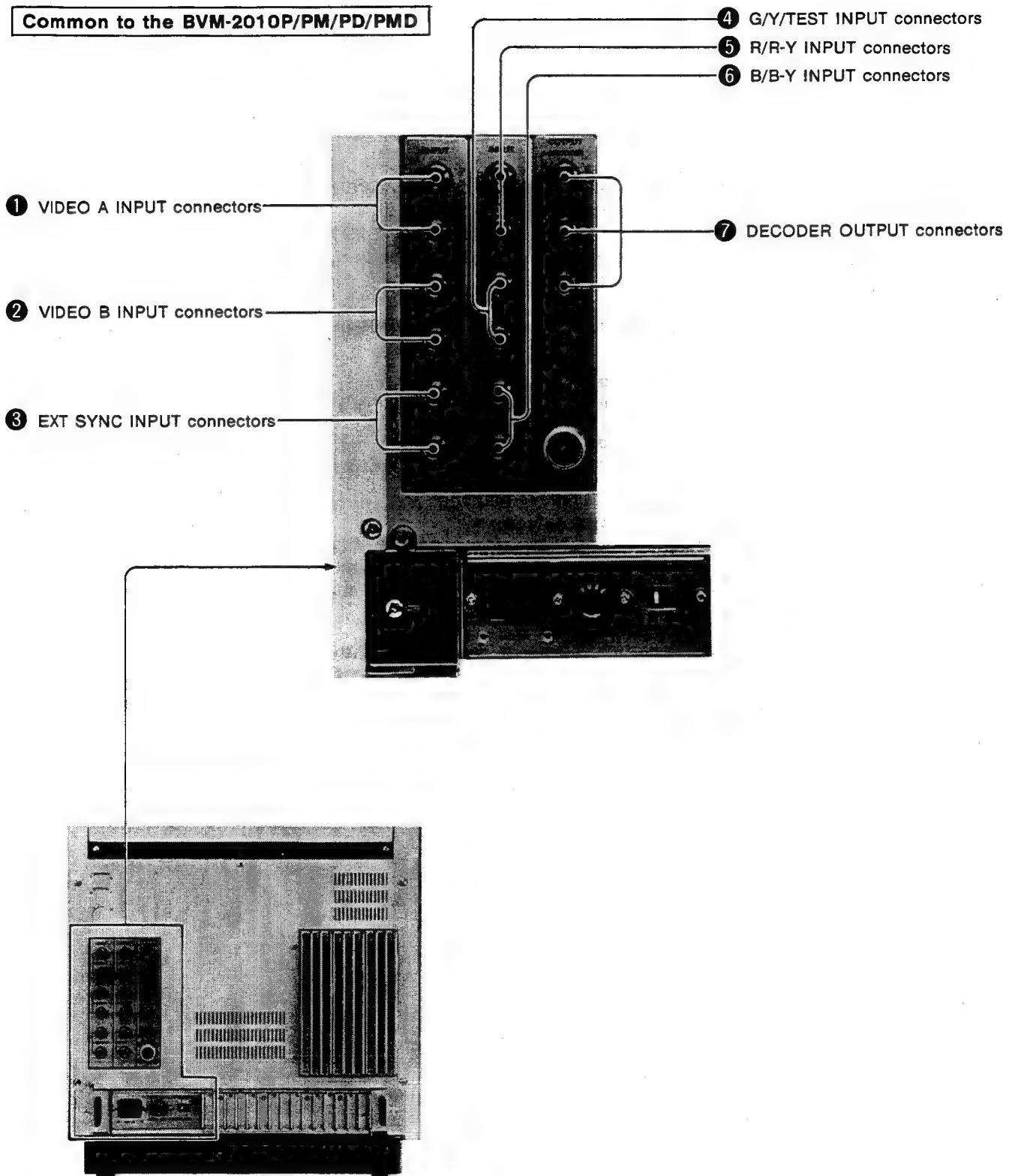
Normally keep this selector released (INT). The monitor operates on the sync signal from the displayed composite video signal. To operate the monitor on an external sync signal supplied from the EXT SYNC connector on the rear panel, depress the selector (EXT).

⑱ POWER switch and indicator

Depress this switch to turn on the power. The POWER indicator will light. To turn the power off, press the switch again.

1-3-2. Rear Panel

Common to the BVM-2010P/PM/PD/PMD



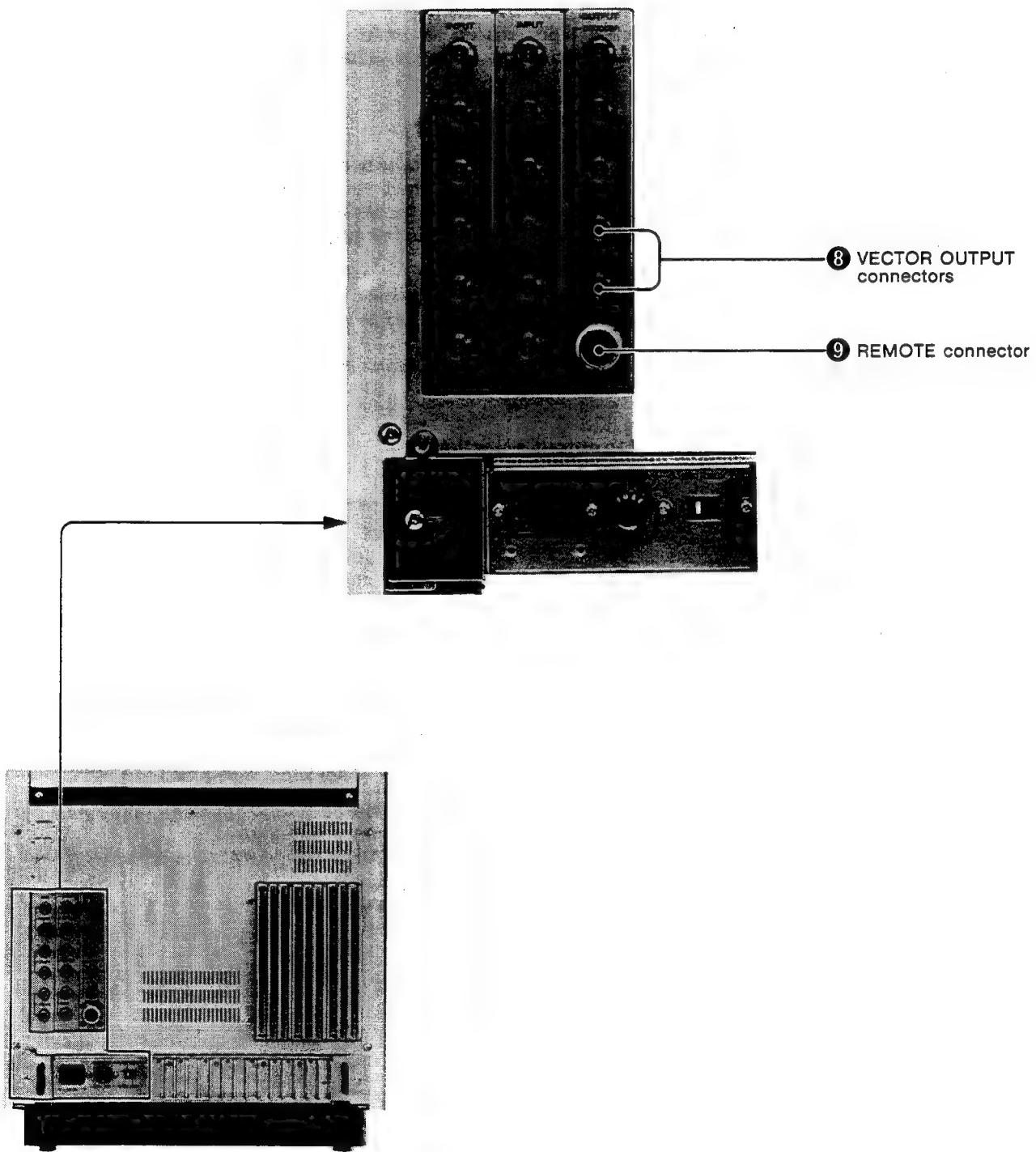
- 1 VIDEO A INPUT connectors (BNC)**
- 2 VIDEO B INPUT connectors (BNC)**
Accept video signals. Use one connector for input and the other for loop-through output.
When the loop-through output is not used, attach a 75-ohm terminator.
- 3 EXT SYNC INPUT (external sync input) connectors (BNC)**
Accept sync signals.
Use one connector for input and the other for loop-through output.
When the loop-through output is not used, attach a 75-ohm terminator.
- 4 G/Y/TEST INPUT connectors (BNC)**
- 5 R/R-Y INPUT connectors (BNC)**
- 6 B/B-Y INPUT connectors (BNC)**
Input an RGB, component (Y, R-Y, B-Y) or test signal. The input signal can be selected with the INPUT SELECT buttons on the sub control panel. Use one connector for input and the other for loop-through output. When the loop-through output is not used, attach a 75-ohm terminator.
- 7 DECODER OUTPUT connectors (BNC)**
These connectors provide RGB or component (Y, R-Y, B-Y) outputs decoded from the signals displayed on the screen, only when the BKM-1440 RGB/component adaptor is installed.
The RGB or component outputs are selected with the S1 selector on the BF board of the BKM-1440 kit.

Quick reference for output selection

Output signal Operation	Component	RGB
S1 selector on BF board	Lower position	Upper position
Input signal	Encoded VIDEO A, VIDEO B, TEST or component.	
Output connectors	DECODER OUTPUT (R/R-Y, G/Y, B/B-Y)	

Notes

- The DECODER OUTPUT connectors do not provide the correct RGB outputs from the displayed RGB signals. For RGB outputs, use the loop-through outputs of the R/G/B input connectors.
- The outputs from non-composite signals are also non-composite. Supply sync signals from the EXT SYNC INPUT connector if required.
- The output signals are affected by the CHROMA, PHASE and APERTURE controls and MATRIX switch.
- The color killer is not activated for output signals.

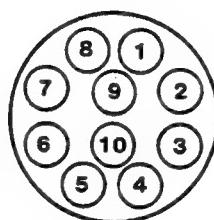


8 VECTOR OUTPUT connectors (BNC)

Provide R-Y and B-Y demodulated chroma outputs. Connect the Tektronix 1424 display unit or equivalent to provide vector displays. Connect the R-Y connector to the Y input of the display unit, and the B-Y connector to the X input.

9 REMOTE connector (10-pin)

Use the supplied 10-pin connector.



To enter remote control mode, short-circuit pin No. 5 with pin No. 8. The relationship between the function and pin connections in remote control mode are shown below.

Function			Pin No.							
INPUT*	SYNC*	MODE*	1	2	3	4	5	6	7	
VIDEO A	INT	AUTO	O	O	-	O	S	-	-	
		MONO	S	O	-	O	S	-	-	
	EXT	AUTO	O	O	-	S	S	-	-	
		MONO	S	O	-	S	S	-	-	
VIDEO B	INT	AUTO	O	S	-	O	S	-	-	
		MONO	S	S	-	O	S	-	-	
	EXT	AUTO	O	S	-	S	S	-	-	
		MONO	S	S	-	S	S	-	-	
VITC OFF**			-	-	-	-	-	S	-	
VITC HOLD**			-	-	-	-	-	O	S	
TALLY ON			-	-	S	-	-	-	-	

S: Short-circuit with pin No. 8.

O: Open

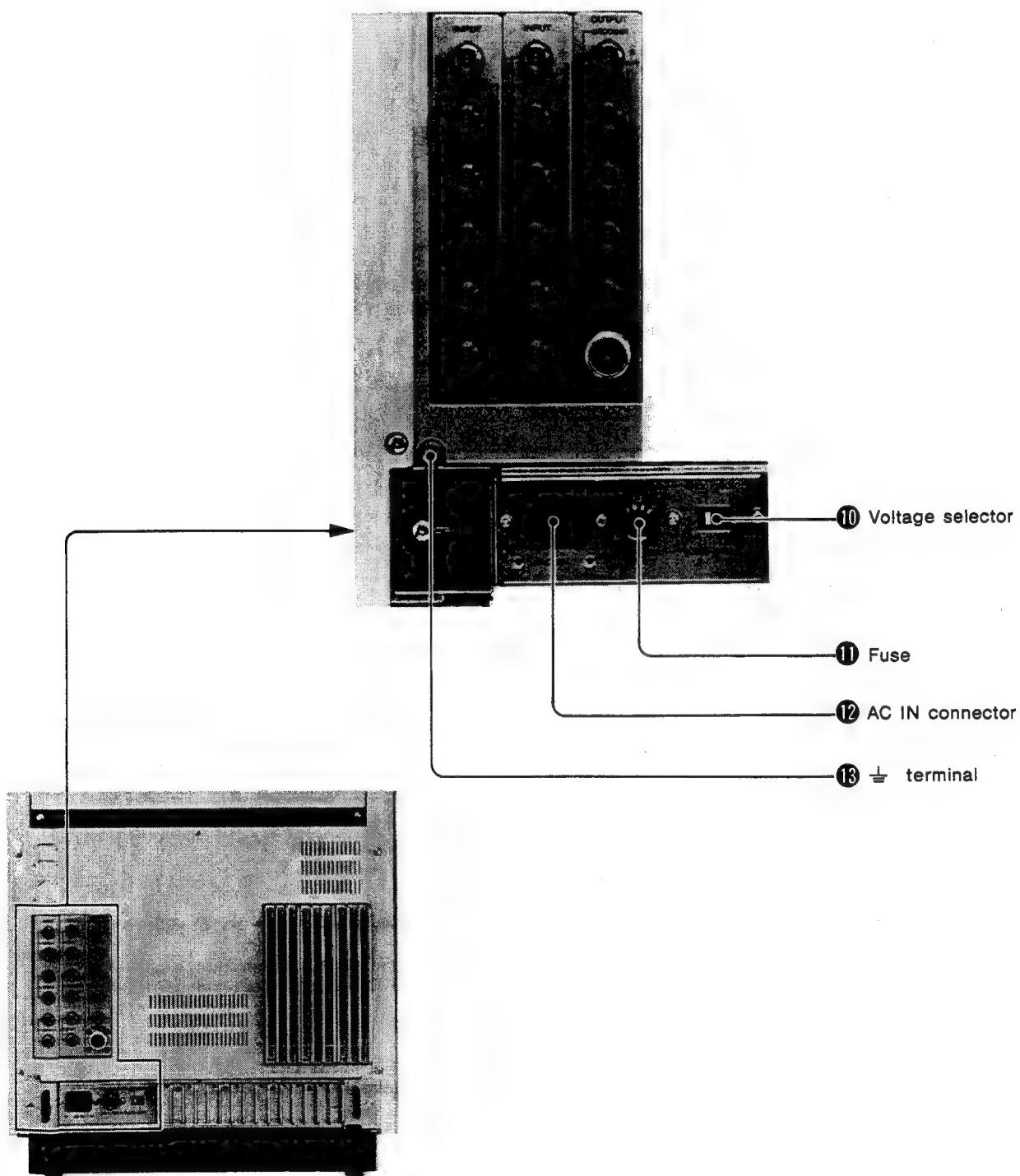
-: Either S or O.

- Remote control operations have priority over the MODE, INPUT and SYNC selectors on the front panel.

- To remotely control the VITC display, first set the VITC switch inside the drawer to ON and then short-circuit pin 6 or 7 with pin 8. (For VITC display, the optional BKM-1460 is required.)

Note

For remote control operations, be sure to depress the INPUT SELECT "B" button inside the drawer.



⑩ Voltage selector

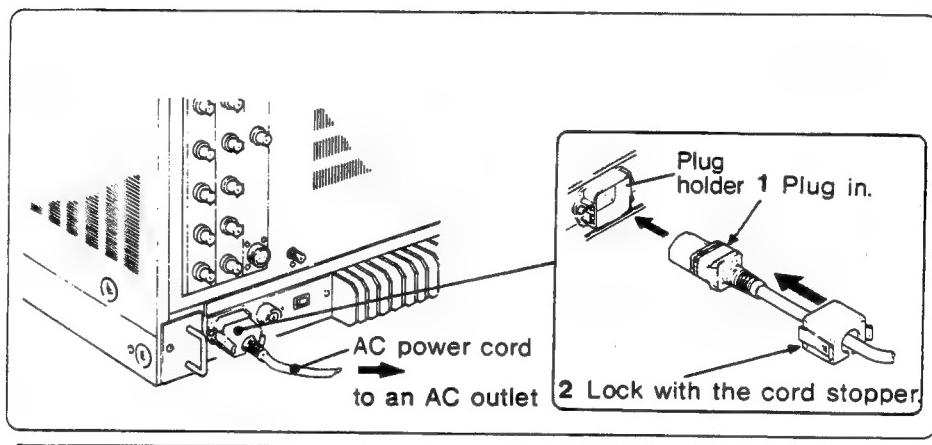
Set to the local power line voltage, 220 – 240V AC or 100 – 120V AC.

⑪ Fuse

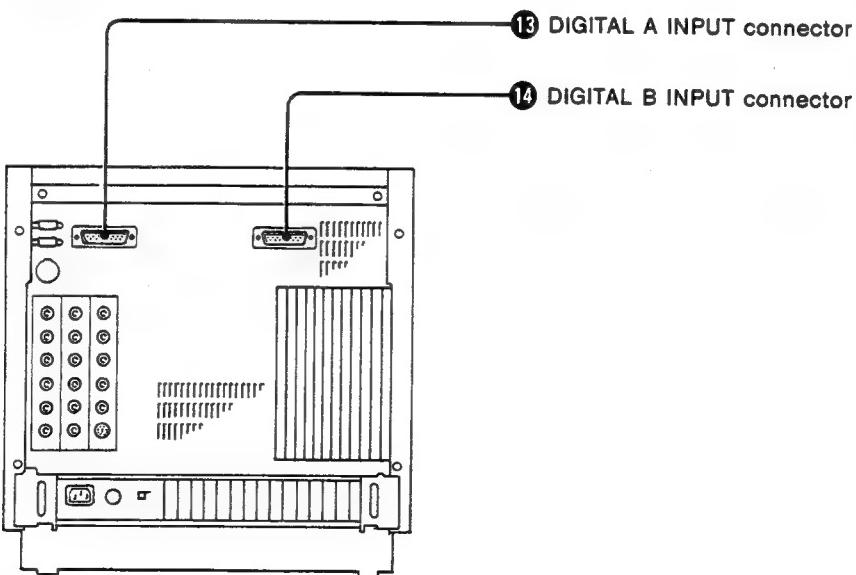
Use a T2A fuse for operation on 220 – 240V AC, or a 4A fuse for operation on 100 – 120V AC.

⑫ AC IN connector

Connect the supplied AC power cord here and secure it with the supplied cord stopper, if required.

**⑬ Ground (⏚) terminal**

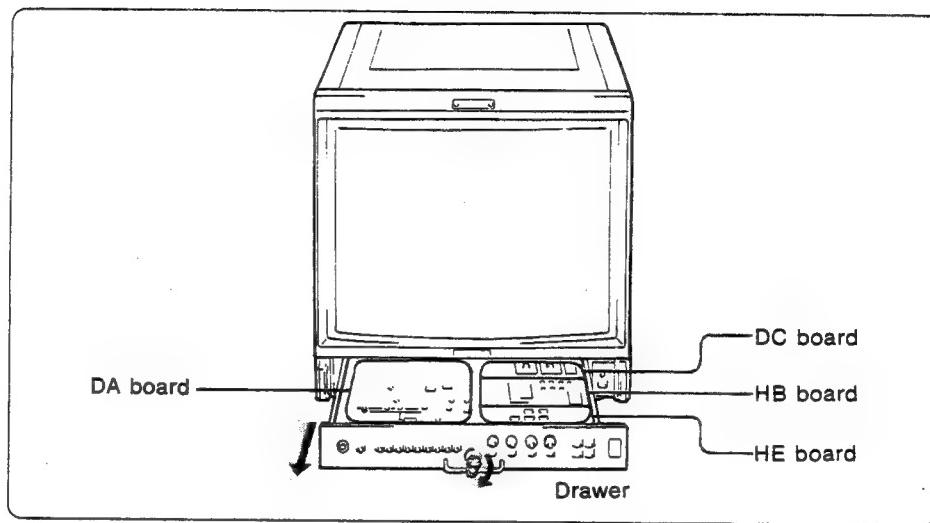
Connect to the system ground, if necessary.

Only for the BVM-2010PD/PMD**⑬ DIGITAL A INPUT connector (D-SUB 25-pin)****⑭ DIGITAL B INPUT connector (D-SUB 25-pin)**

Accept RP-125 or Tech 3246-E standard video signals from the Sony 4:2:2 component DVTR system.

1-3-3. Sub Control Panels inside the Drawer

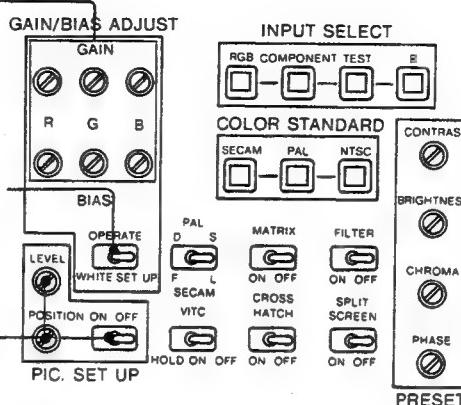
Insert the supplied key into the keyhole of the drawer lock, turn it 90° clockwise and pull the drawer out.



- Adjust the controls on the sub control panels when the monitor is fully warmed up. Warm-up time will be at least 30 minutes after the power has been turned on.
- Adjust the control using the supplied screwdriver.

HB board (Function selection and white balance adjustment section)

① GAIN/BIAIS ADJUST controls



② WHITE/OPERATE/SET UP selector

③ PIC. SET UP switch and controls

① GAIN/BIAIS ADJUST controls

Used for white balance adjustment.

GAIN and BIAS controls are provided for the R (red), G (green) and B (blue) screens.

BIAS: Set the WHITE/OPERATE/SET UP selector to SET UP and adjust the white balance and brightness of the screen at the lowlight with these controls.

GAIN: Set the WHITE/OPERATE/SET UP selector to WHITE and adjust the white balance and contrast of the screen at the highlight with these controls. For details on the white balance adjustment, refer to "1-5. WHITE BALANCE ADJUSTMENT" on page 1-36.

② WHITE/OPERATE/SET UP selector

OPERATE: Normally set to this position for normal monitoring.

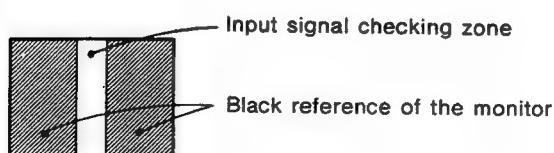
WHITE: When adjusting the white balance at the highlight, set to this position. Internal 100% white signal is displayed on the screen.

SET UP: When adjusting the white balance at the lowlight, set to this position. A horizontal white bar of approximately 1/3 the screen height is displayed.

③ PIC. SET UP (picture set up) switch and controls

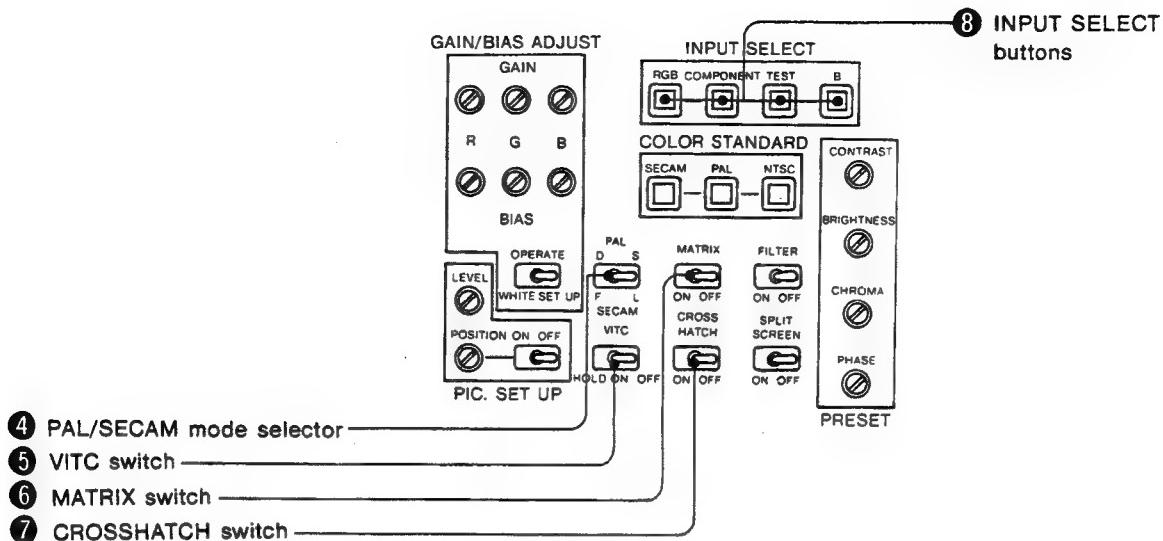
Used to match the black reference of the monitor with the black level of the input signal.

ON/OFF switch: When this switch is set to ON, a vertical picture band and the black reference of the monitor are displayed on the screen for easy level comparison.



POSITION control: Move the position of the picture band horizontally so that the black signal of the picture is located next to the black reference area.

LEVEL control: Adjust this control to match the brightness of the black reference area with that of the input black signal.



④ PAL/SECAM mode selector

This selector functions as the PAL D/S selector for PAL color system, and as the SECAM F/L selector for SECAM color system.

PAL D/S selector: Selects the demodulation mode of the PAL system, D (deluxe) or S (simple). Normally set to D.

SECAM F/L selector: Selects the ID signal of the SECAM system, L (line) or F (field). Normally set to L.

⑤ VITC (Vertical Interval Time Code) switch

This switch functions only when the optional BKM-1460 VITC adaptor is installed.

ON: Set to this position to display the VITC.

OFF: To turn off the VITC display.

HOLD: To hold the VITC figure, press the switch momentarily to this position. To run the VITC again, press the switch to this position again.

⑥ MATRIX switch

Normally set this switch to OFF. Set to ON to activate the matrix circuit so that the chromaticity of the displayed picture more closely approximates to that of "true" NTSC phosphors.

⑦ CROSSHATCH switch

Set to ON to display the internal crosshatch pattern for adjusting convergence, etc.

The crosshatch pattern is synchronized to the selected composite sync signal.

⑧ INPUT SELECT buttons

To monitor one of the following four input signals, depress the INPUT B selector on the front panel and press the appropriate button.

RGB: To monitor the R/G/B signals connected to the R/R-Y, G/Y/TEST and B/B-Y connectors

COMPONENT: To monitor the component (R-Y, Y and B-Y) signals connected to the R/R-Y, G/Y/TEST and B/B-Y connectors

TEST: To monitor the composite video signals connected to the G/Y/TEST connector

B: **BVM-2010P/PM** To monitor the composite video signals connected to the VIDEO B INPUT connector

BVM-2010PD/PMD To monitor the composite video signals connected to the VIDEO INPUT B connector or to monitor the digital video signal connected to the DIGITAL B INPUT connector

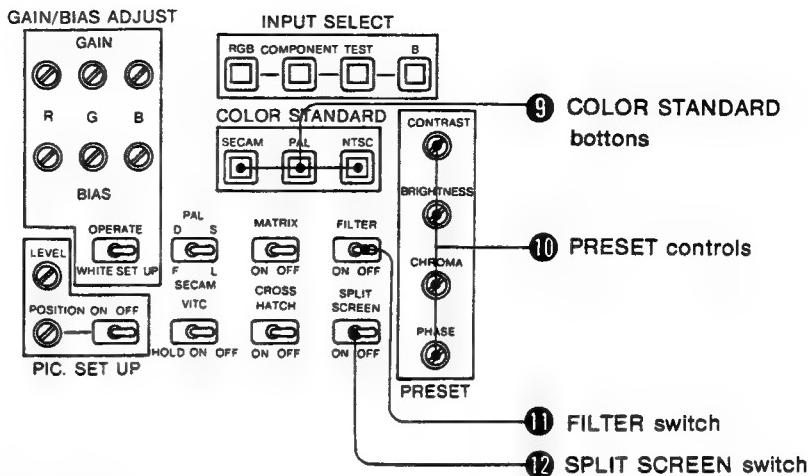
Quick reference for input selection

BVM-2010P/PM

Input signal Operation	Encoded video			Component	RGB
	VIDEO A	VIDEO B	TEST		
INPUT selectors (front panel)	A	B	B	B	B
INPUT SELECT buttons (Inside the drawer)		B	TEST	COMPONENT	RGB
INPUT connectors	VIDEO A	VIDEO B	G/Y/TEST	R/R-Y, G/Y/TEST, B/B-Y	R/R-Y, G/Y/TEST, B/B-Y

BVM-2010PD/PMD

Input signal Operation	Encoded video			4:2:2 digital		Component B	RGB
	VIDEO A	VIDEO B	TEST	DIGITAL A	DIGITAL B		
INPUT buttons (Front panel)	A	B	B	A	B	B	B
INPUT SELECT button (Inside the drawer)		B	TEST		B	COMPONENT	RGB
COLOR STANDARD buttons (Inside the drawer)	SECAM PAL	SECAM PAL	SECAM PAL	DIGITAL			
INPUT connectors	VIDEO A	VIDEO B	G/Y/ TEST	DIGITAL A	DIGITAL B	R/R-Y G/Y/TEST B/B-Y	



⑨ COLOR STANDARD buttons

Select the color standard of the input picture.

For displaying the picture of each color standard, the appropriate decoder board (optional) should be installed. See page 1-2.

BVM-2010P/PM

SECAM: For SECAM standard

PAL: For PAL or PAL-M standard

NTSC: For NTSC standard

BVM-2010PD/PMD

DIGITAL (SECAM): For digital video signal (or SECAM standard*)

PAL: For PAL or PAL-M standard

NTSC: For NTSC standard

Note

If the decoder board for the selected color system is not installed:

- The picture does not appear on the screen when the FILTER switch is set to ON.
- The picture is displayed in monochrome mode when the FILTER switch is set to OFF.

⑩ PRESET controls

Adjust the preset levels.

CONTRAST: Preset the picture contrast level.

BRIGHTNESS: Preset the picture brightness level.

CHROMA: Preset the color saturation level.

PHASE: Preset the subcarrier phase.

⑪ FILTER switch

This switch functions only when the AUTO/MONO MODE selector on the front panel is set to MONO.

Normally set to ON to activate the comb or trap filter. Set to OFF to deactivate the filter for a wider frequency range.

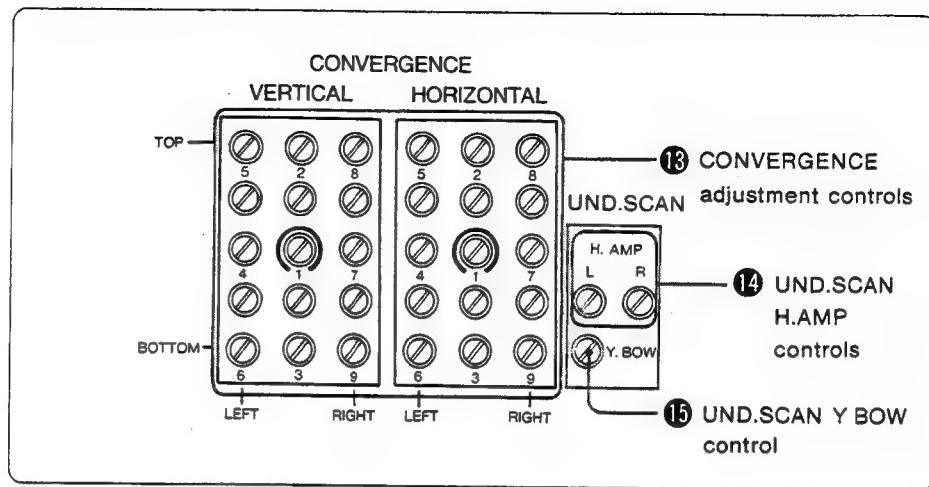
- When the MODE selector is set to AUTO, the filter is always activated for color signals regardless of this switch setting.

⑫ SPLIT SCREEN switch

Normally set to OFF. When this switch is set to ON, the lower half of the picture is displayed in monochrome mode.

* To monitor the SECAM standard video signal, mount the BKM-1430 on the unit and set the COLOR STANDARD selector on the BR board to the upper or middle position. See page 1-31.

DC board (Convergence adjustment section)



⑬ CONVERGENCE adjustment controls

Used to adjust the convergence of the normal picture. The VERTICAL controls adjust the convergence vertically; the HORIZONTAL controls adjust it horizontally. 15 controls cover the entire screen so that each control adjusts the corresponding portion of the screen.

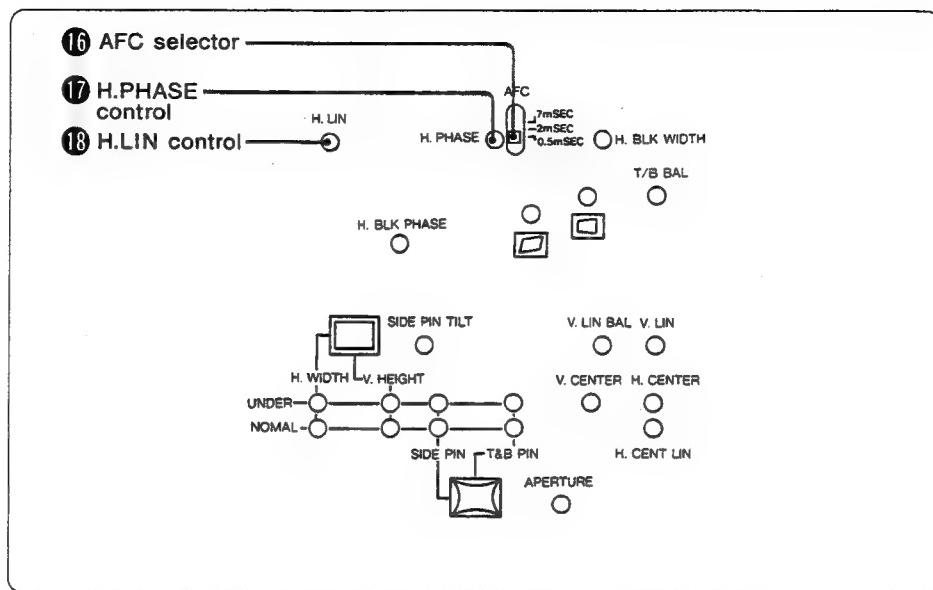
Refer to "1-4. CONVERGENCE ADJUSTMENT" on page 1-32.

⑭ UND.SCAN H.AMP (underscan horizontal amplifier) control

Used to adjust the horizontal convergence of the underscanned picture. See 1-4-2.

⑮ UND.SCAN Y BOW (underscan Y bow) control

Used to adjust the horizontal convergence at the top and bottom of the center of the underscanned picture. See 1-4-2.

DA board (H.V. oscillator section)**⑯ AFC (automatic frequency control) selector**

Selects the AFC time constant.

0.5 mSEC (fast): This mode is fast enough to correct for VTR jitter. Set to this position to obtain a stable playback picture from a VTR.

2 mSEC (normal): Normally set to this position.

7 mSEC (slow): This mode is slow enough to display the time base instability introduced by mechanical jitter, in the VTR playback signal.

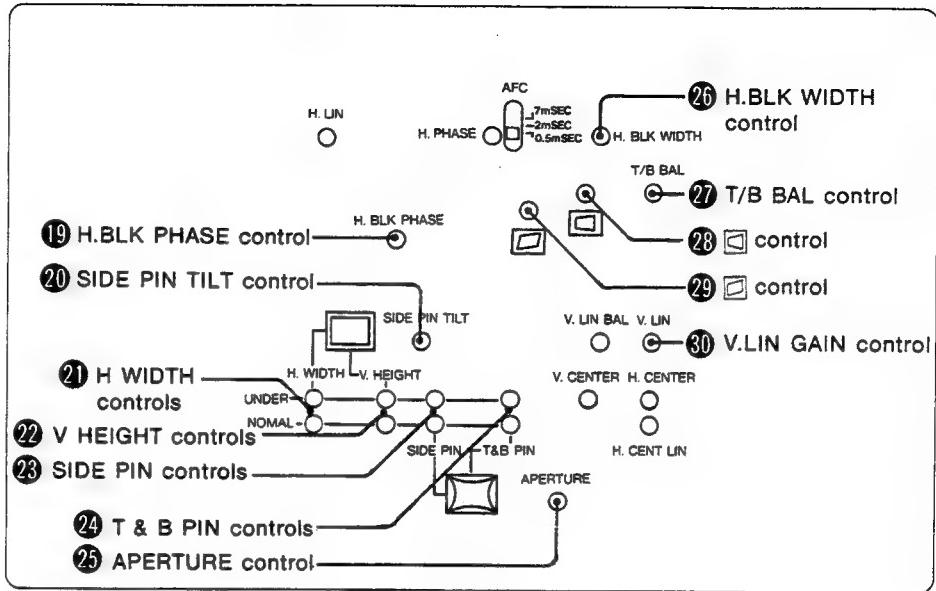
⑰ H.PHASE (horizontal phase) control

Used to adjust the horizontal position of the picture.

**⑱ H.LIN (horizontal linearity) control**

Used to adjust the horizontal linearity of the picture.





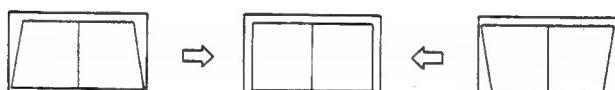
⑯ H.BLK PHASE (horizontal blanking phase) control

Used to adjust the phase of the horizontal blanking at both sides of the screen.



⑰ SIDE PIN TILT (side pincushion tilt) control

Used to adjust the phase of the side pincushion distortion.



㉑ H WIDTH (horizontal width) controls

Adjust the horizontal width of the picture. Use the NORMAL control for the normal picture, and the UNDER control for the underscanned picture.

㉒ V HEIGHT (vertical height) controls

Adjust the height of the picture. Use the NORMAL control for the normal picture, and the UNDER control for the underscanned picture.

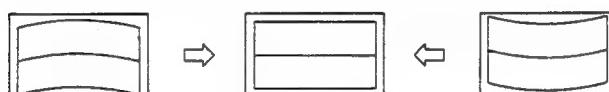
㉓ SIDE PIN (pincushion) controls

Correct the side pincushion distortion. Use the NORMAL control for the normal picture, and the UNDER control for the underscanned picture.

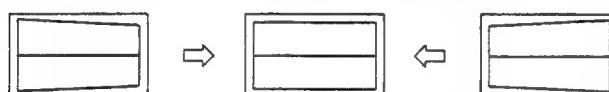
- ②₄ **T & B PIN (top and bottom pincushion) distortion controls**
Correct the top and bottom pincushion distortion. Use the NORMAL control for the normal picture, and the UNDER control for the underscanned picture.
- ②₅ **APERTURE control**
Adjusts the frequency response when the APERTURE switch on the front panel is depressed.
- ②₆ **H.BLK WIDTH (horizontal blanking width) control**
Used to adjust the width of the horizontal blanking.



- ②₇ **T/B BAL (top and bottom pincushion balance) control**
Used to adjust the distortion at the center (X axis) of the picture.



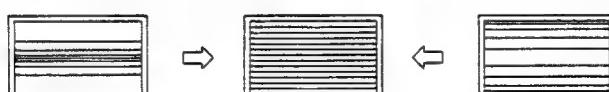
- ②₈ **□ (trapezoid distortion) control**
Used to correct the horizontal trapezoid distortion.

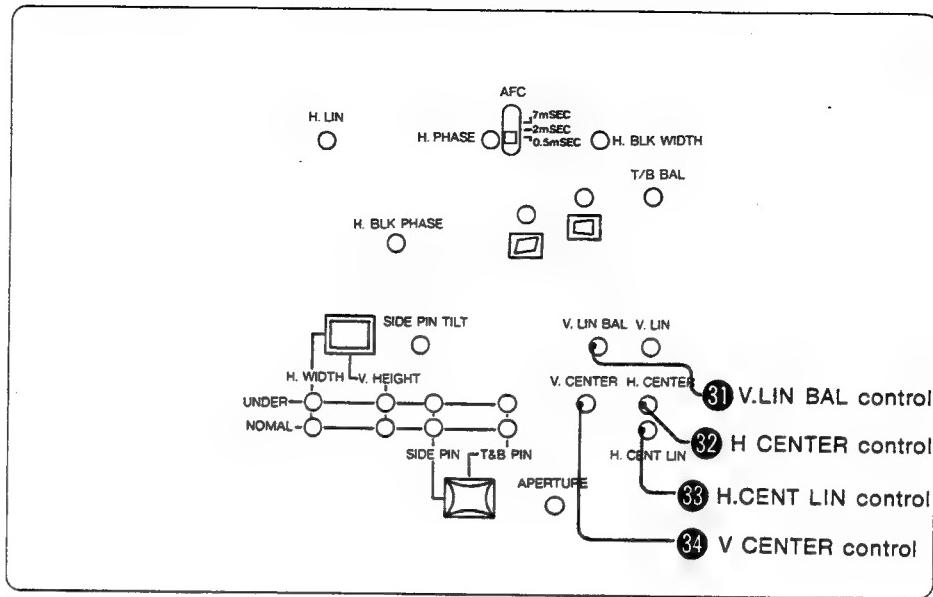


- ②₉ **□ (parallelogram distortion) control**
Used to correct the right angled distortion of the deflection yoke.



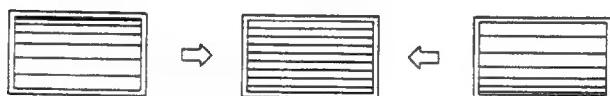
- ③₀ **V.LIN GAIN (vertical linearity gain) control**
Used to adjust the vertical linearity of the picture.





31 V.LIN BAL (vertical linearity balance) control

Used to adjust the balance of the vertical (Y axis) linearity of the picture.



32 H CENTER (horizontal centering) control

Adjusts the horizontal position of the picture.

33 H.CENT LIN (horizontal centering linearity) control

Used to adjust the horizontal linearity at the center of the picture.

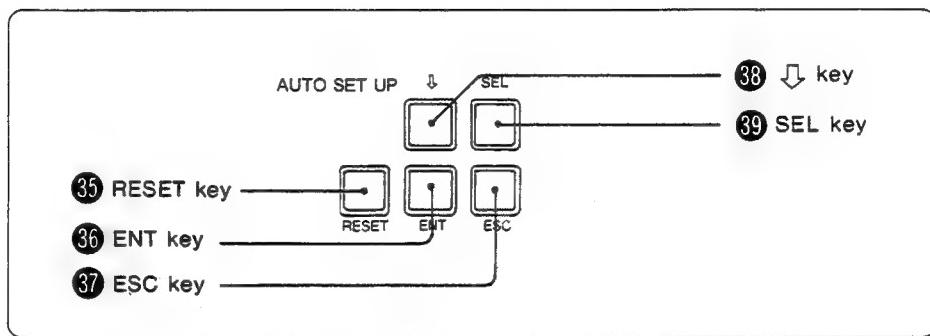


34 V CENTER (vertical centering) control

Adjusts the vertical position of the picture.

HE board (Auto chroma/phase adjustment, Auto white balance adjustment section)

To activate these keys, the optional BKM-2056 auto set-up adaptor must be installed.

**35 RESET key**

Press to reset the auto set-up operation and return to the initial status. This key is operative even when automatic adjustment is in operation.

36 ENT (enter) key

Press to advance to the next step during auto set-up operation and to present next menu choice. This key is also used to start the auto set-up operation.

37 ESC (escape) key

Press to return to the previous step during auto set-up operation. This key is not operative while automatic adjustment is in operation.

38 ↓ (cursor) key

For selecting options from menus. Each time this key is pressed, the cursor moves downwards, and then to the top.

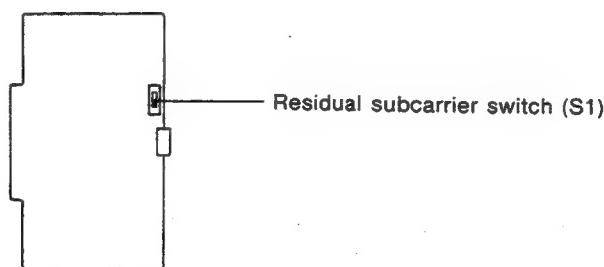
39 SEL (select) key

Press to set the monitor to color temperature selection mode. Also used to select the memory position of the probe in color analyzer mode.

1-3-4. Switches inside the Cabinet

Remove the cabinet, referring to Section 2.

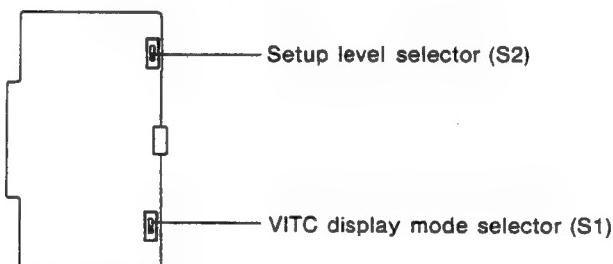
BJ board



Residual subcarrier switch (S1)

This switch is factory-preset to the lower position (OFF). Normally there will be no residual subcarrier in input video signals. However, if a residual subcarrier is present, this may affect the display. Set this switch to the upper position (ON) to check if a residual subcarrier is present. If it is present in the incoming signal, color shift appears in the picture.

BH board



Setup level selector (S2)

Select the setup level.

0 IRE: Setup level is 0%.

AUTO: Factory-preset position. Setup level is 0% when the field frequency of the input signal is 50 Hz, and 7.5% when the field frequency is 60 Hz.

7.5 IRE: Setup level is 7.5%.

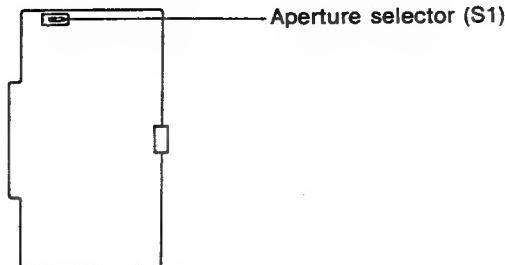
The setup level can be adjusted with the controls on the BH board: 0% level with the RV1 control, and 7.5% level with the RV2 control in the range from -2.5% through +12.5%.

VITC display mode selector (S1)

Used to invert the character and background colors.

Upper position: Factory-preset position. The VITC is displayed in white characters with black background.

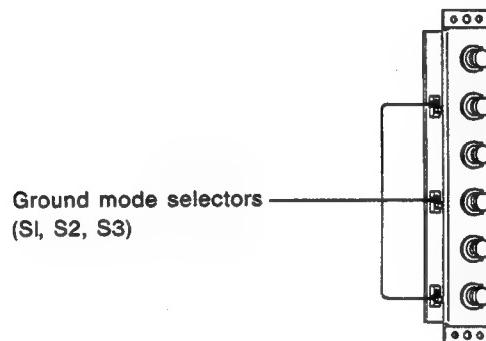
Lower position: The VITC is displayed in black characters with white background. For details, refer to the operation and maintenance manual of the BKM-1460 VITC adaptor.

BG board**Aperture selector (S1)**

Selects the boost frequency, 4.5 MHz or 6.5 MHz, for aperture correction. This selector is factory-preset to 4.5 MHz.

QA and QB boards

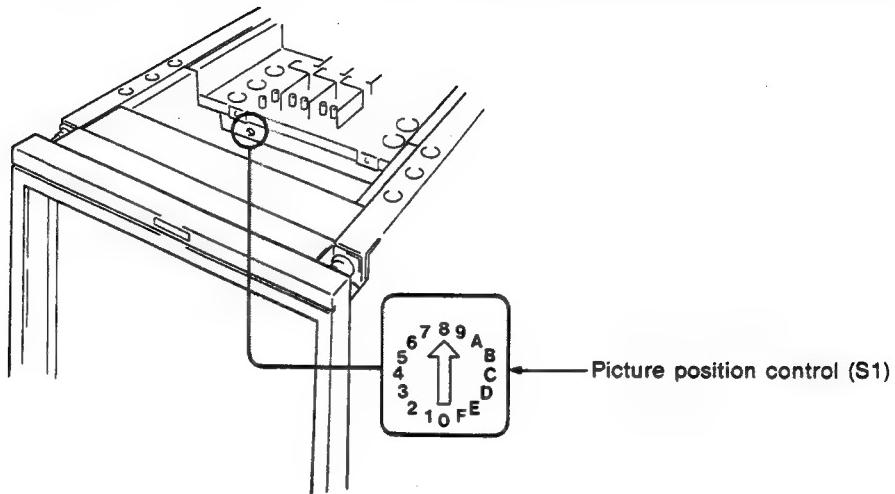
The QA and QB boards are located behind the INPUT connector panels. Remove the INPUT connector panels, referring to Section 2.

**Ground mode selectors (S1, S2, S3)**

Three selectors are provided for each VIDEO A, VIDEO B and EXT SYNC connectors (QA board), or for each R/R-Y, G/Y/TEST and B/B-Y connectors (QB board).

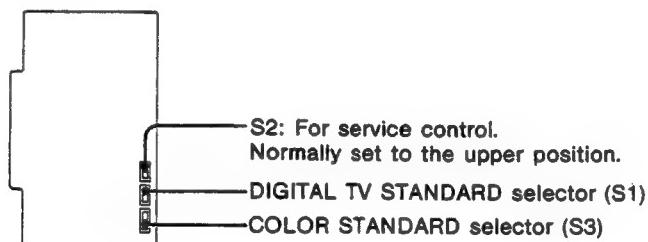
S (non-floating): Factory-preset position. Normally keep the selectors at this position.

F (floating): When there is hum in the input signal, set to this position. Common mode noises will be rejected.

QD board (Only for the BVM-2010PD/PMD)**Picture position control (S1)**

Leave this dial set to position 8.

Only qualified service personnel should change its position.

BR board (Only for the BVM-2010PD/PMD)**DIGITAL TV STANDARD selector (S1)**

Depending on the TV standard of the input digital video signal, select the position.

Upper position (525): 525/60 line standard system

Lower position (625): 625/50 line standard system

COLOR STANDARD selector (S3)

Select the COLOR STANDARD button (inside the drawer) to be used for monitoring the digital video signal by setting the selector to the upper position (NTSC), middle position (PAL) or lower position (SECAM).

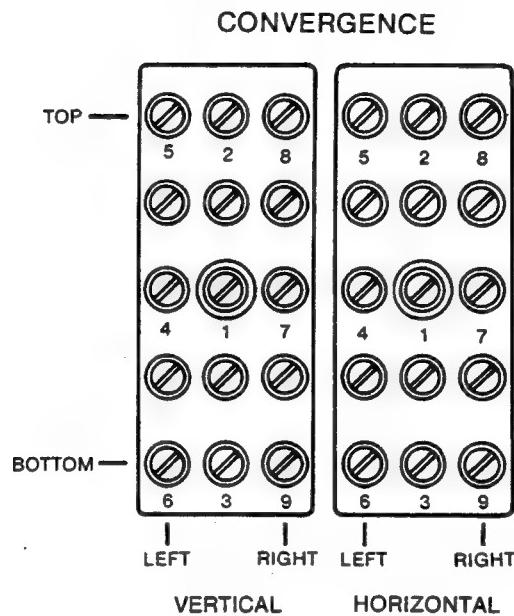
The selector is factory preset to the lower position (SECAM). To monitor the SECAM standard video signal, set the selector to the upper or middle position.

If either of these two are chosen, put the label [DIGITAL] on the PAL or NTSC button of the COLOR STANDARD buttons.

1-4. CONVERGENCE ADJUSTMENT

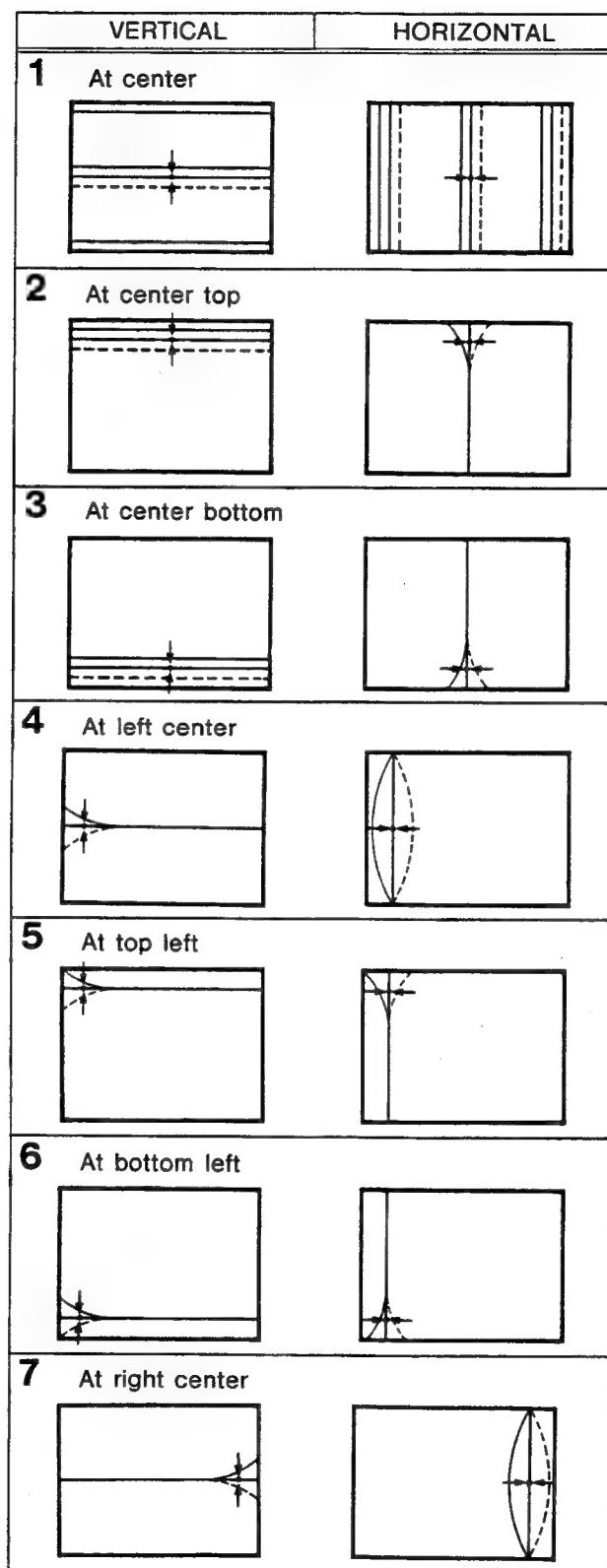
1-4-1. Convergence Adjustment of Normal Picture

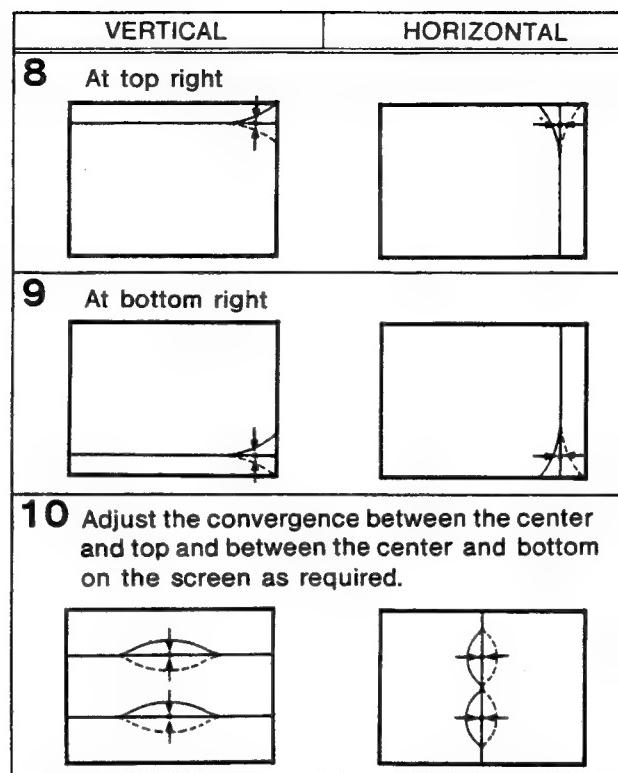
Use the CONVERGENCE controls inside the drawer.



- Numbers 1 to 9 in the illustration above refer to the sequence of operations.
 - The HORIZONTAL controls adjust the convergence horizontally, and the VERTICAL controls adjust the convergence vertically.
 - When adjusting the convergence, observe the portion of the screen indicated by the || or --- mark in the illustrations. The red and blue beams move symmetrically to the green beam.

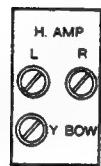
Adjust the convergence of corresponding portion of the screen as follows:





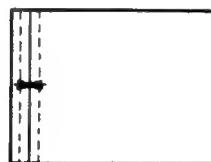
1-4-2. Convergence Adjustment of Underscanned Picture

Adjust the convergence of the underscanned picture after convergence adjustment of the normal picture is completed.



- 1 Adjust the horizontal convergence with the UND.SCAN H.AMP control.

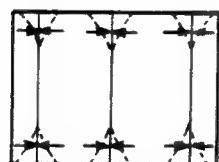
L (left)



R (right)



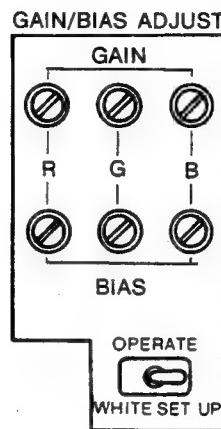
- 2 Adjust the horizontal convergence at the four corners of the picture with the UND.SCAN Y BOW control.



1-5. WHITE BALANCE ADJUSTMENT

Use the WHITE/OPERATE/SET UP selector and GAIN/BIAIS ADJUST controls inside the drawer.

During adjustment, turn the red, green and blue beams on and off with the SCREEN switches on the front panel, as required.



- 1 Display a test signal on the screen.
- 2 Set the WHITE/OPERATE/SET UP selector to SET UP.
- 3 Adjust the white balance at the lowlight with the BIAS controls.
- 4 Set the WHITE/OPERATE/SET UP selector to WHITE.
- 5 Adjust the white balance at the highlight with the GAIN controls.
- 6 After adjustment, set the WHITE/OPERATE/SET UP selector to OPERATE.

Note

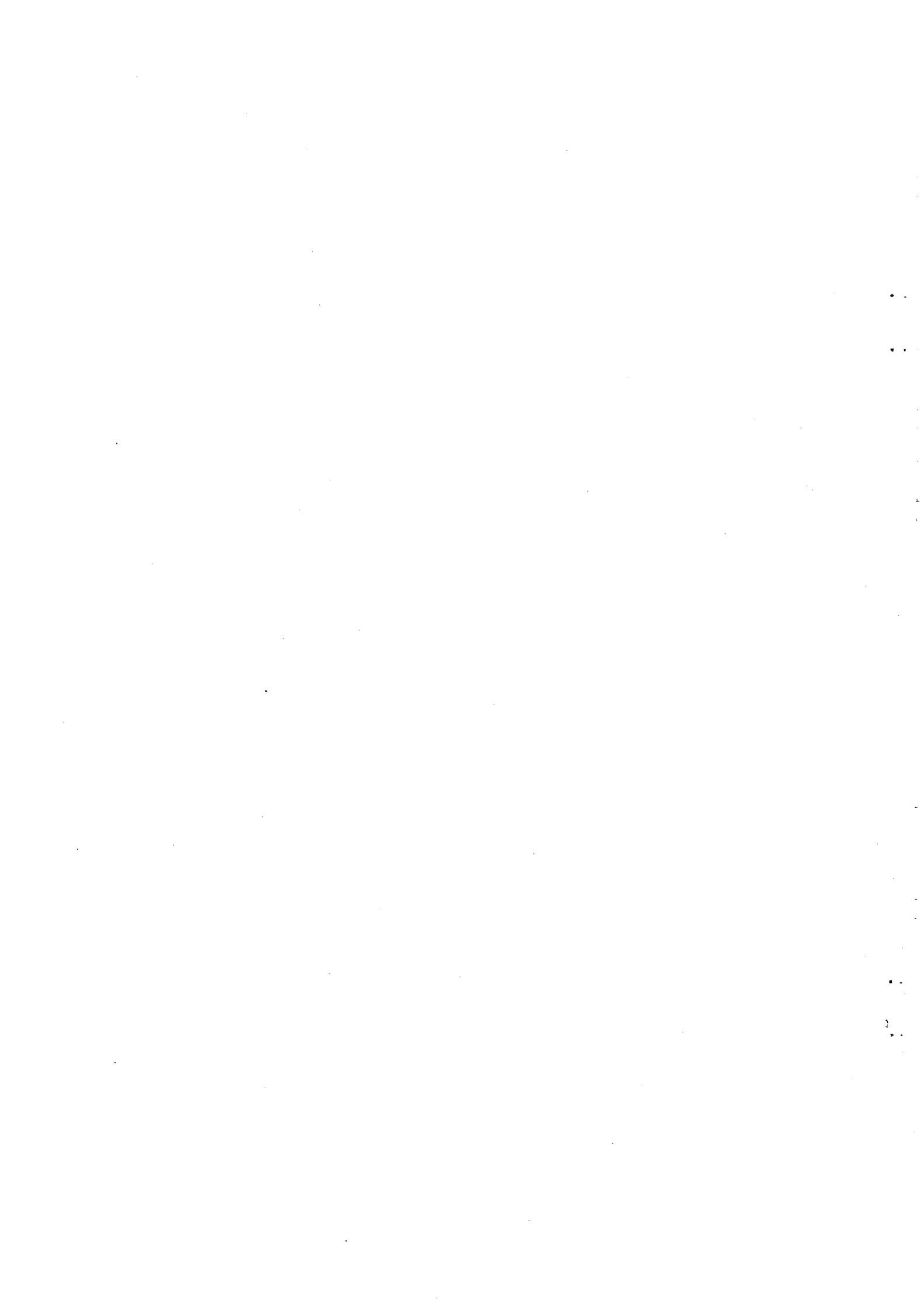
For white balance adjustment using a color analyzer or equivalent, see Section 2.

1-6. SPECIFICATIONS

Common to the BVM-2010P/PM/PD/PMD

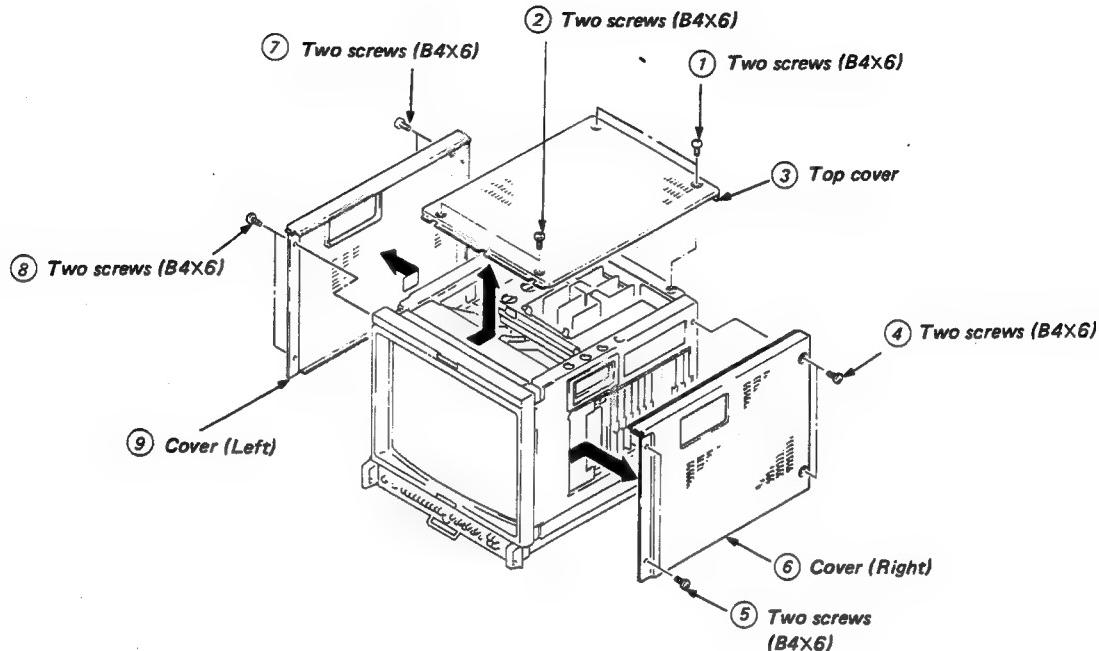
System	BVM-2010P/PD 625 lines per picture, 50 fields per second interlaced, PAL BVM-2010PM/PMD 525 lines per picture, 60 fields per second interlaced, PAL-M
CRT	Super Fine Pitch Trinitron 0.3 mm aperture grille, 90-degree deflection, ϕ 36 mm in-line gun Effective picture size: 291 × 384 mm (h/w) (11½ × 15½ inches) 482 mm (19 inch) picture measured diagonally
Input	
Connectors	BNC type (12)
Video	VIDEO A/B, TEST, R/G/B 0.7 Vp-p, non-composite or 1 Vp-p, composite, video signal \pm 6 dB positive, high impedance, with loop- through output
	Y/R-Y/B-Y Y: Composite, 1.0 Vp-p \pm 6 dB, high impedance, loop- through R-Y/B-Y: 0.7 Vp-p \pm 6 dB, high impedance, loop- through
Sync	EXT SYNC 1 – 8 Vp-p negative, high impedance, with loop- through output
Return loss	More than 46 dB (7 MHz with 75-ohm termination)
Hum rejection	Reduced by more than 50 dB Maximum hum: Less than 4 Vrms, where hum is applied to the monitor in floating ground mode
Output	
Connectors	VECTOR OUT: BNC type (2) DECODER OUT: BNC type (3) (output decoded signals only when BKM-1440 is installed.) REMOTE: 10-pin connector (1)

* The input level of a component signal conforms to the EBU "N-10" standard. (Only for the BVM-2010P/PD)



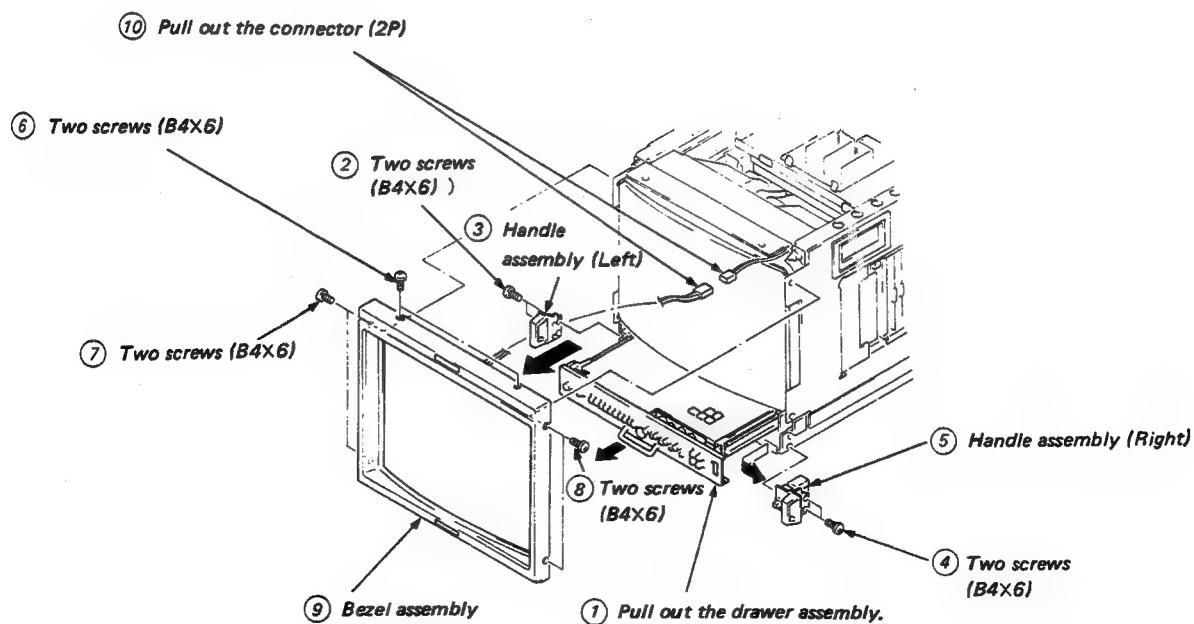
SECTION 2 DISASSEMBLY

2-1. COVER REMOVAL



|————| 2. DISASSEMBLY

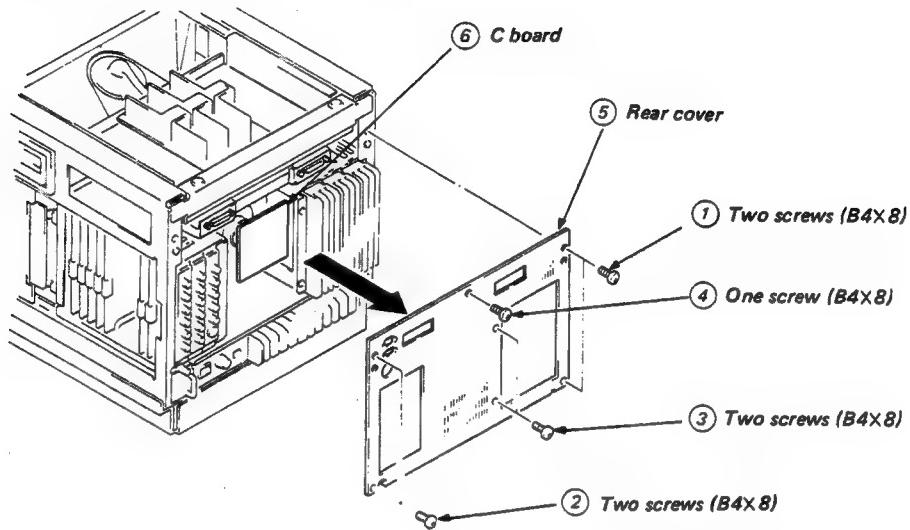
2-2. BEZEL ASSEMBLY REMOVAL



2-3. CHECK OF C BOARD

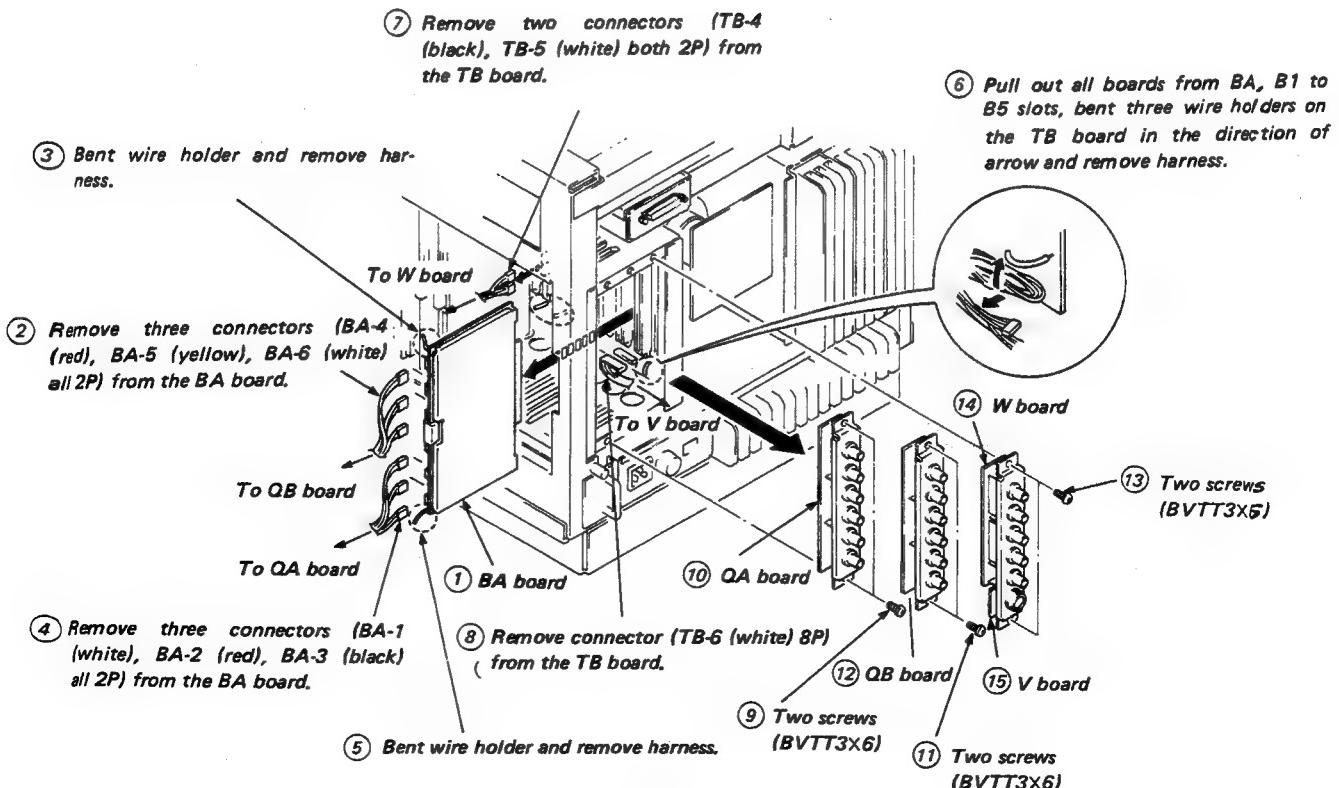
Note: Do it after removing cover (Right, Left).
(Refer to 2-1. COVER REMOVAL)

Note: The illustration shows the BVM-2010PD/PMD. The BVM-2010P/PM can be check of C board in the same way.



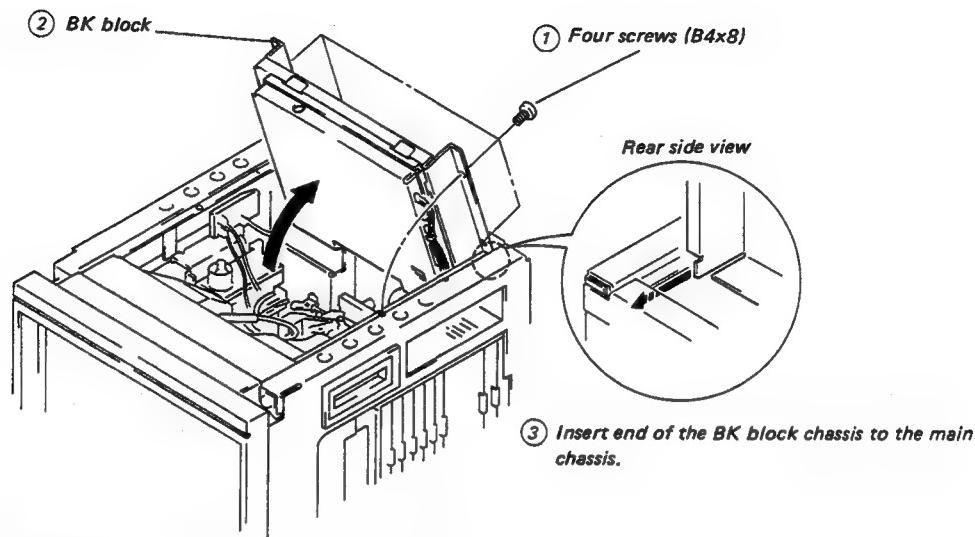
2-4. QA, QB, W AND V BOARDS REMOVAL

Note: Do it after removing rear cover. (Refer to 2-3.
 CHECK OF C BOARD)



2-5. OPEN THE BK BLOCK

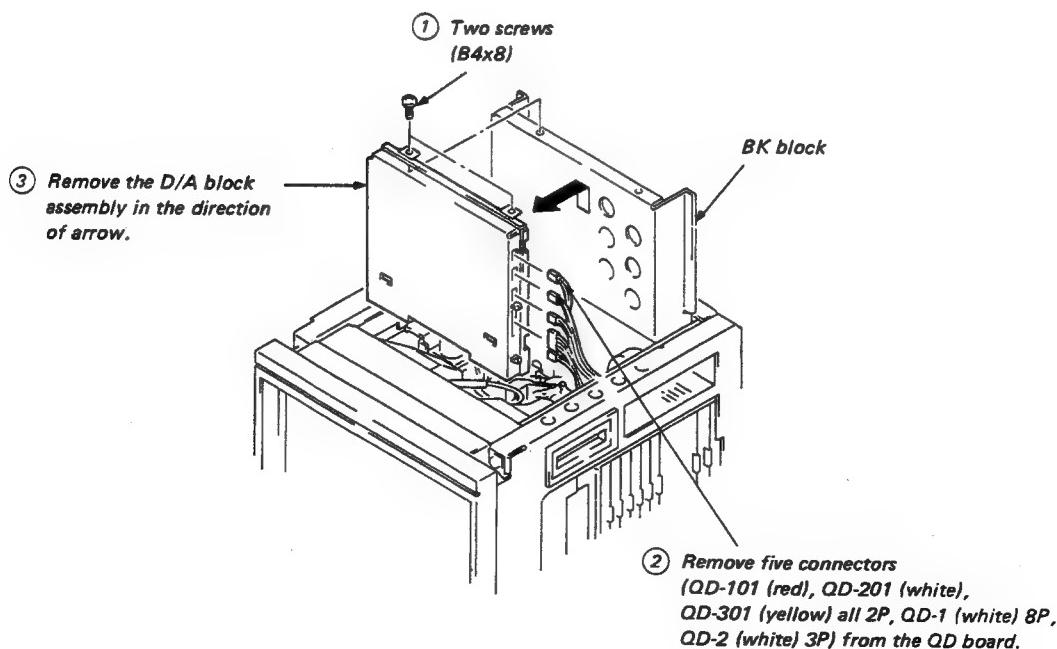
Note: The illustration shows the BVM-2010PD/PMD. The BVM-2010P/PM can be opened in the same way.



2-6. D/A BLOCK ASSEMBLY REMOVAL (BVM-2010PD/PMD ONLY)

Note: Do it after opening BK block.
(Refer to 2-5. OPEN THE BK BLOCK)

Note: The D/A block assembly is supplied only with the BVM-2010PD/PMD.



2-7. BK BOARD REMOVAL

- ② Bent five wire holders on the BK board in the direction of arrow and remove harness.

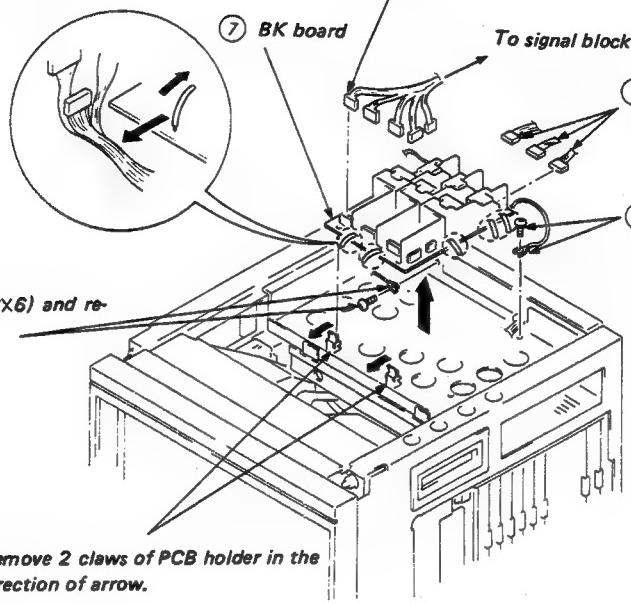
- ③ Remove five connectors (BK-1 (red), BK-2 (yellow), BK-3 (white) all 4P, BK-4 (white) 3P, BK-5 (white) 5P) from the BK board.

- ① Remove three connectors (BK-6 (red), BK-7 (yellow), BK-8 (white) all 4P) from the BK board.

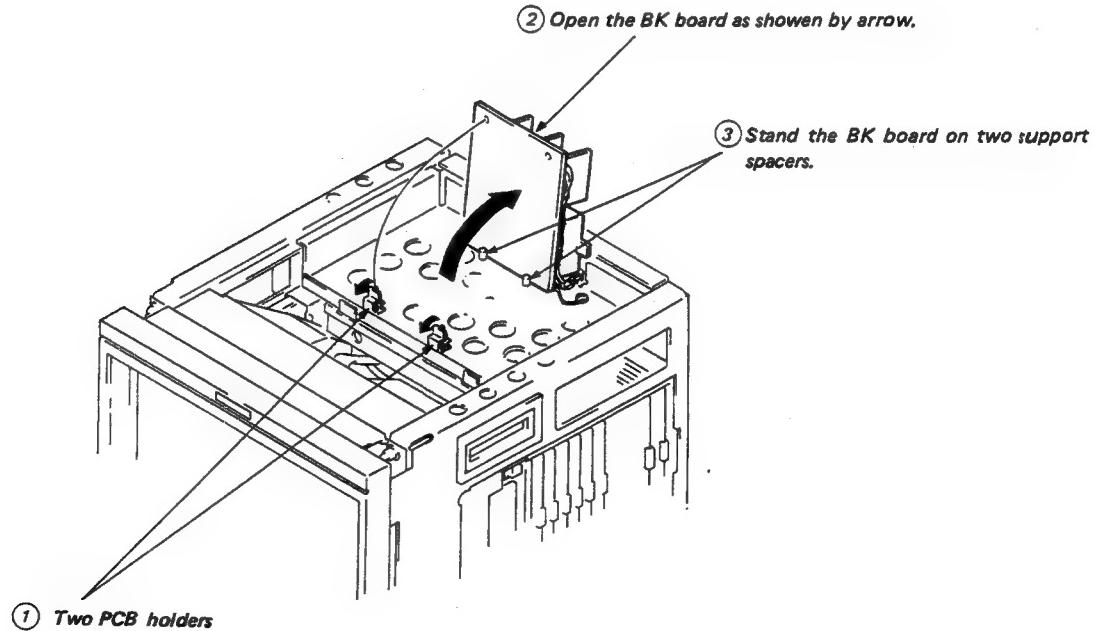
- ④ Loosen a screw (BVTT 3X6) and remove ground terminal.

- ⑤ Loosen a screw (BVTT 3X6) and remove ground terminal.

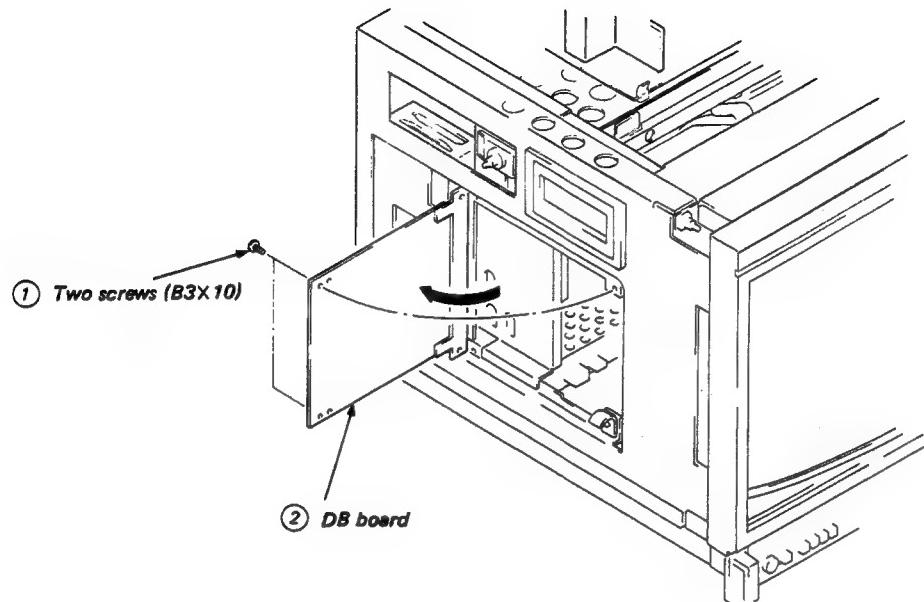
- ⑥ Remove 2 claws of PCB holder in the direction of arrow.



2-8. CHECK OF BK BOARD

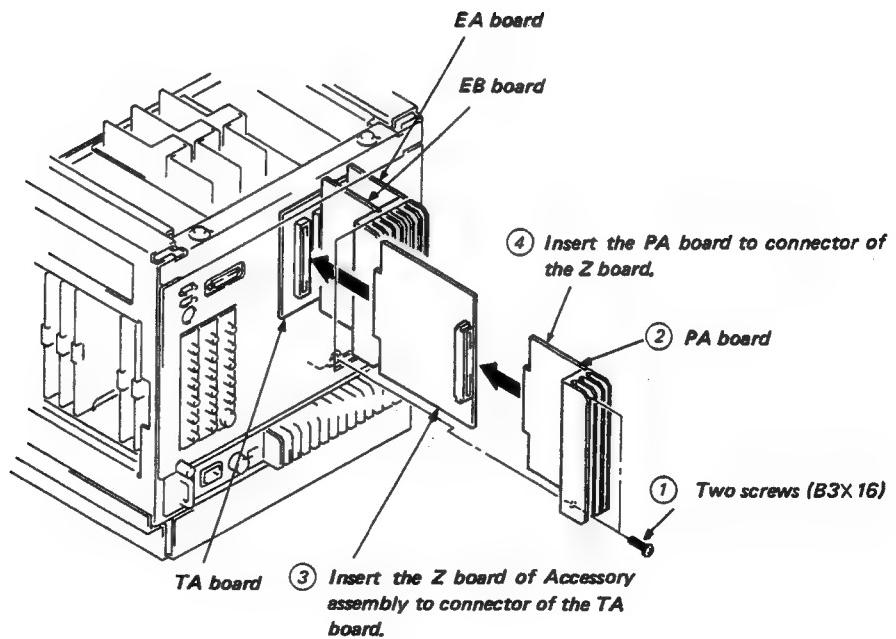


2-9. CHECK OF DB BOARD



2-10. CHECK OF PA BOARD

Note: EA and EB boards can be checked similarly.

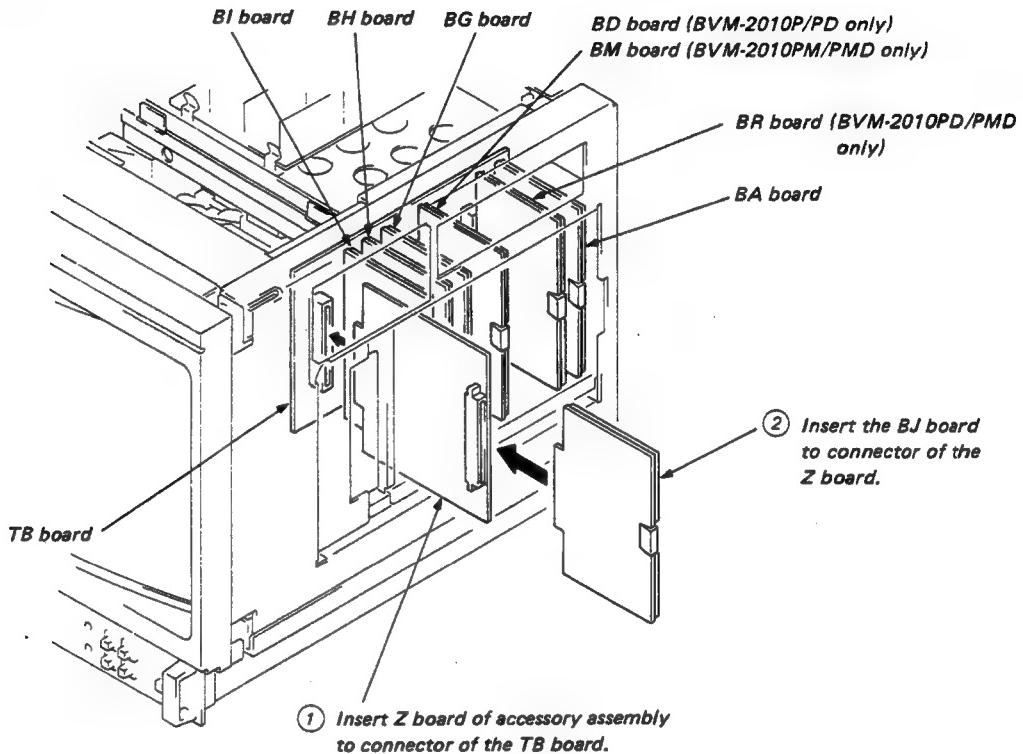


2-11. CHECK OF BJ BOARD

Note: PC board retainer is attach as anti-detach jig for the board. Remove the PC board retainer before checking.

Note: BA, BD, BM, BG, BH, BI and BR boards can be checked similarly.

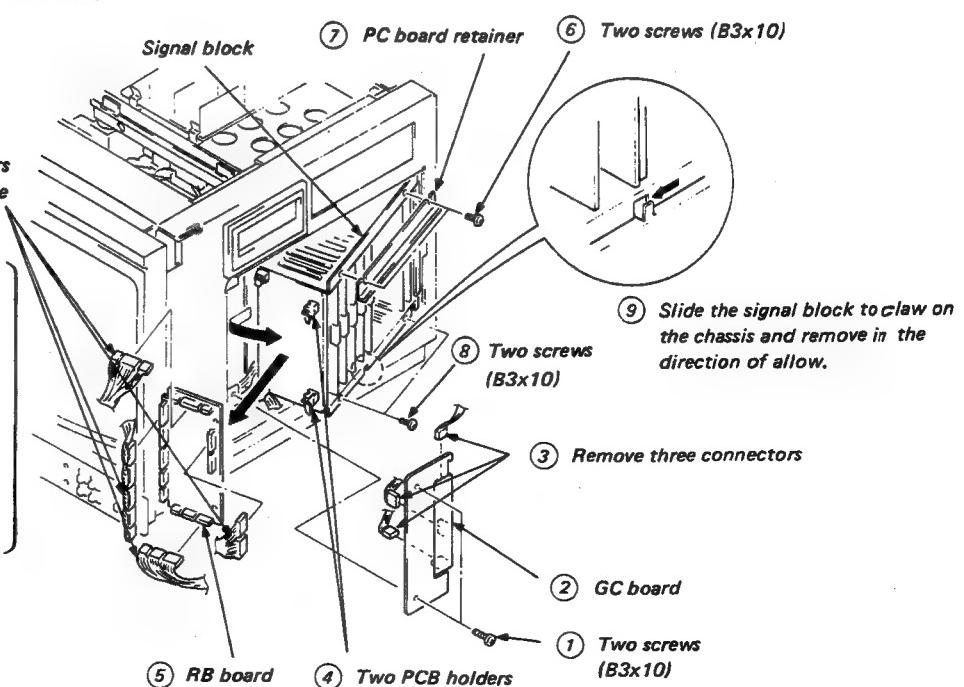
Note: The BR wiring board is supplied only with the BVM-2010PD/PMD.



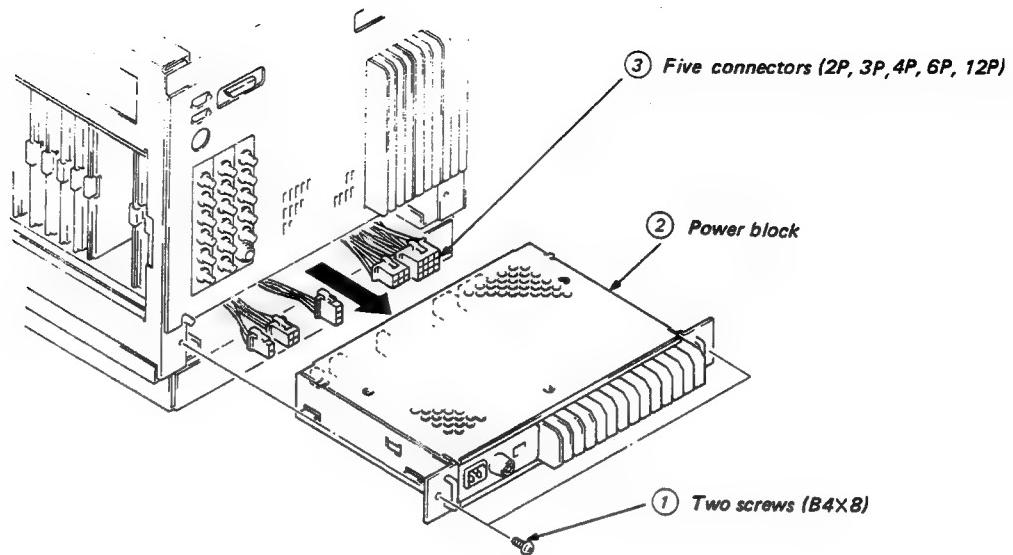
2-12. GC AND RB BOARDS REMOVAL

- ⑩ Remove the following 21 connectors from the RB board and remove the RB board.

RB-1 (black) 7P, RB-4 (red) 8P,
RB-5 (yellow) 8P, RB-6 (red) 12P,
RB-7 (white) 12P, RB-8 (black) 10P,
RB-9 (white) 8P, RB-10 (red) 7P,
RB-11 (white) 7P, RB-12 (red) 7P,
RB-13 (white) 8P, RB-14 (black) 12P,
RB-15 (yellow) 2P, RB-2 (white) 10P,
RB-16 (white) 2P, RB-21 (white) 3P,
RB-22 (red) 3P, RB-17 (yellow) 3P,
RB-18 (white) 4P, RB-19 (red) 6P,
RB-20 (yellow) 6P



2-13. POWER BLOCK ASSEMBLY REMOVAL



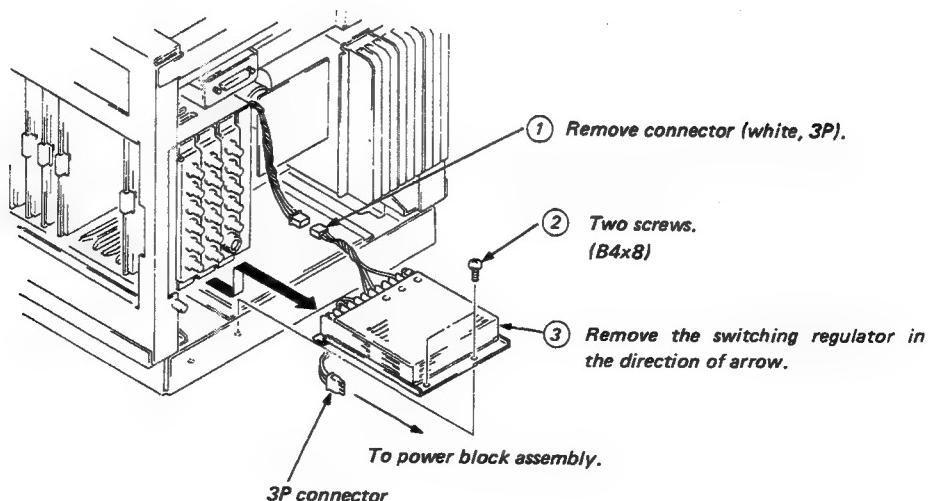
2-14. SWITCHING REGULATOR REMOVAL

(BVM-2010PD/PMD ONLY)

Note: Do it after removing rear panel and power block assembly.

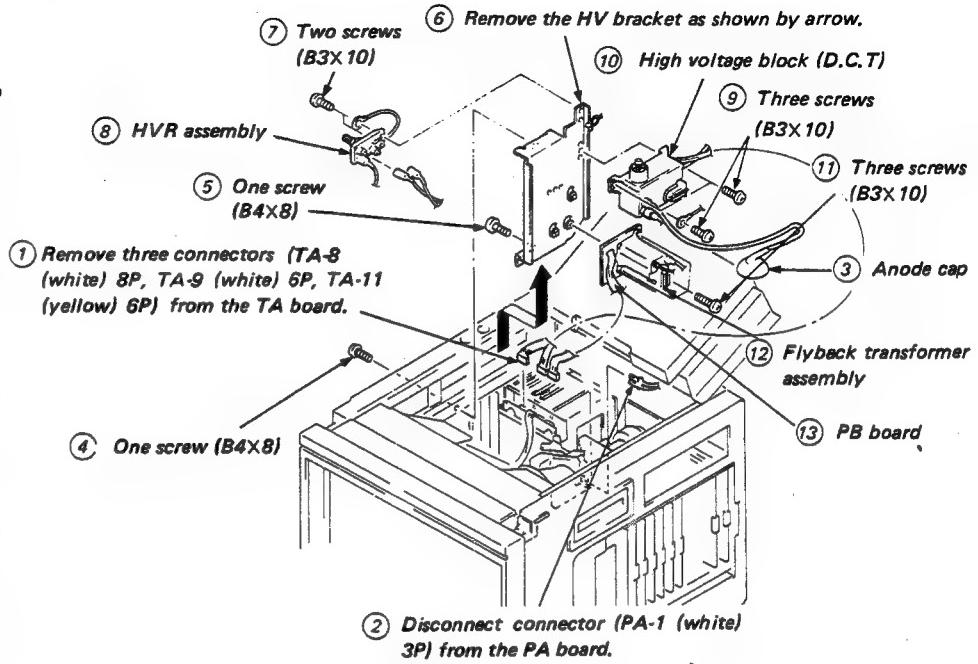
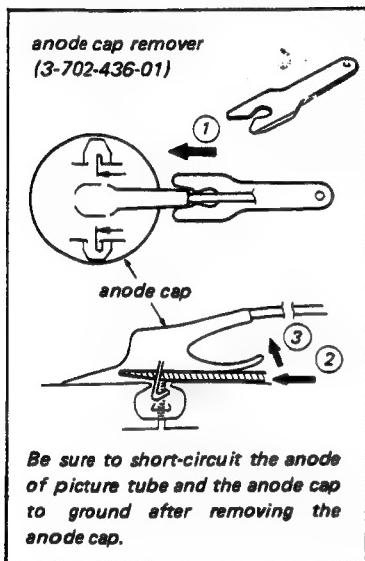
(Refer to 2-3. CHECK OF C BOARD, 2-13. POWER BLOCK ASSEMBLY REMOVAL)

Note: The switching regulator is supplied only with the BVM-2010PD/PMD.



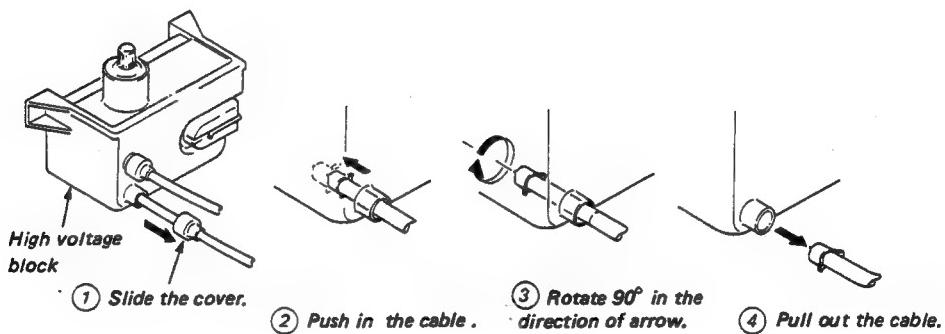
2-15. FLYBACK TRANSFORMER AND HIGH VOLTAGE BLOCK REMOVAL

● REMOVAL OF ANODE CAP

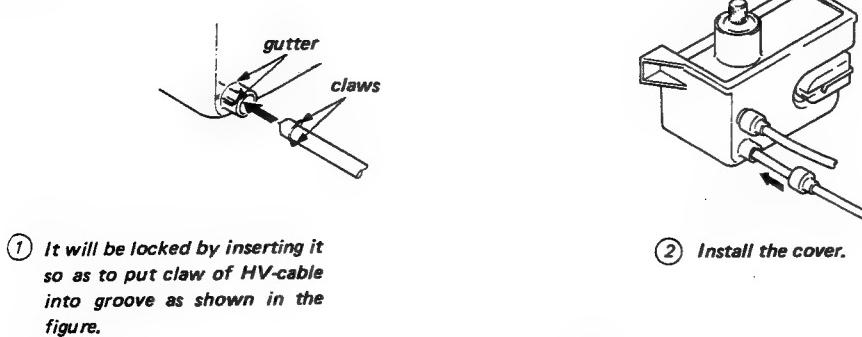


2-15-1. REMOVAL AND REPLACEMENT OF HIGH VOLTAGE CABLE

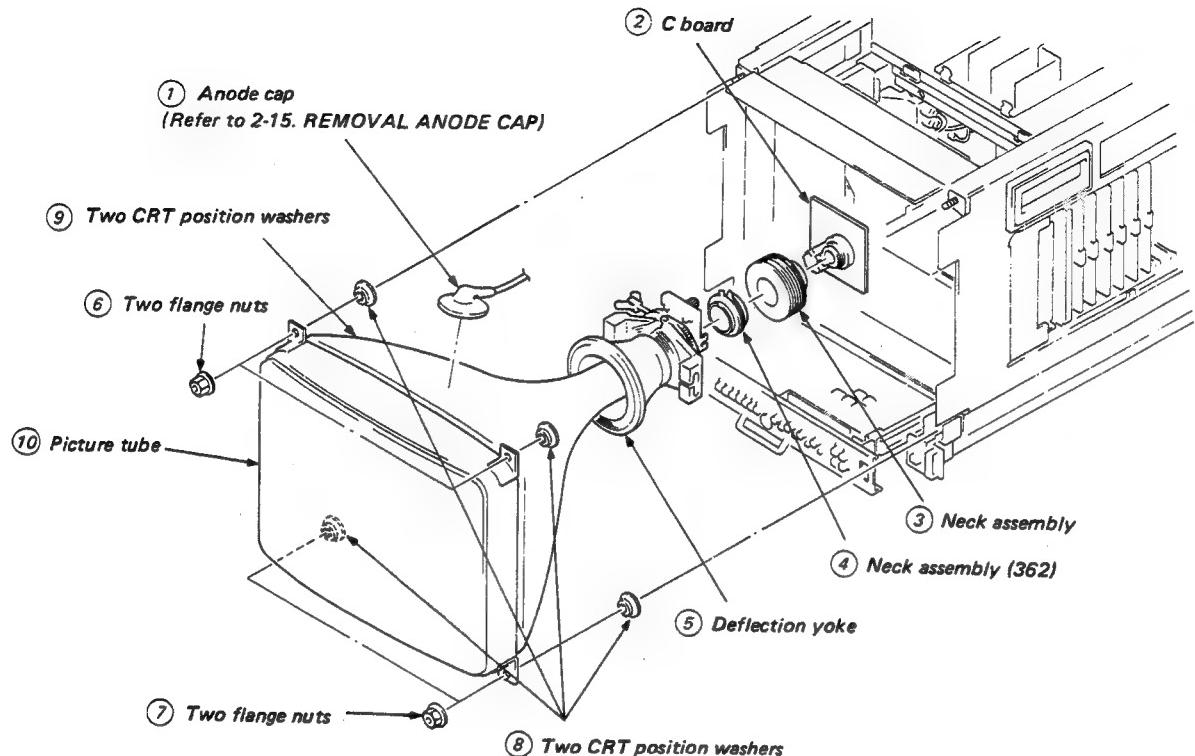
<Removal>



<Installation>

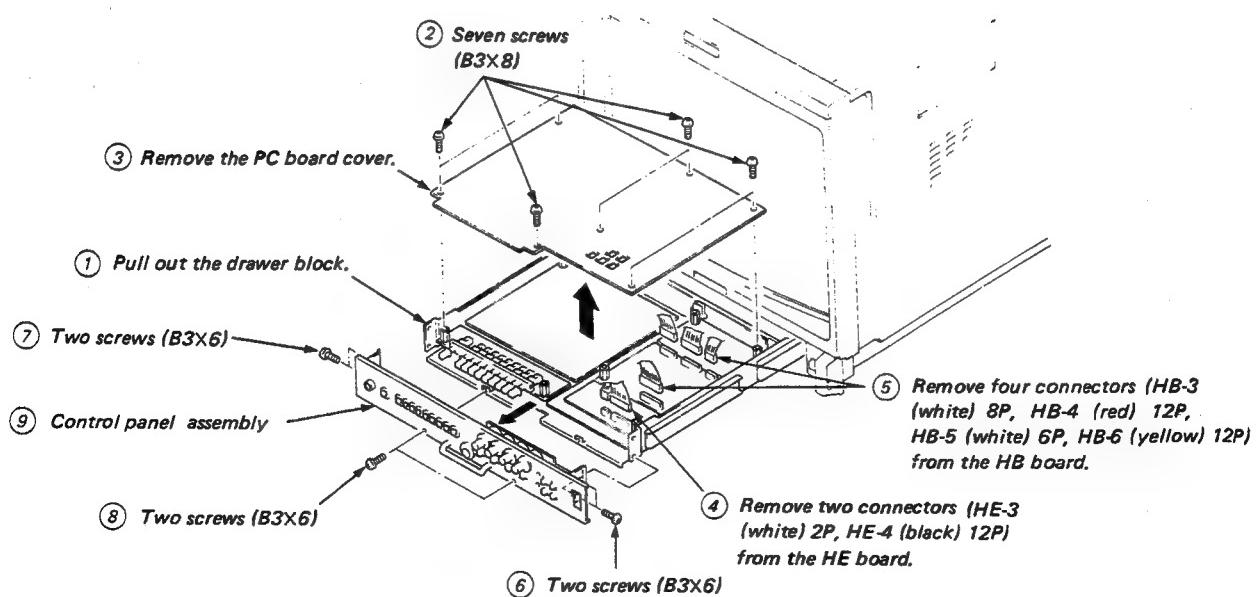


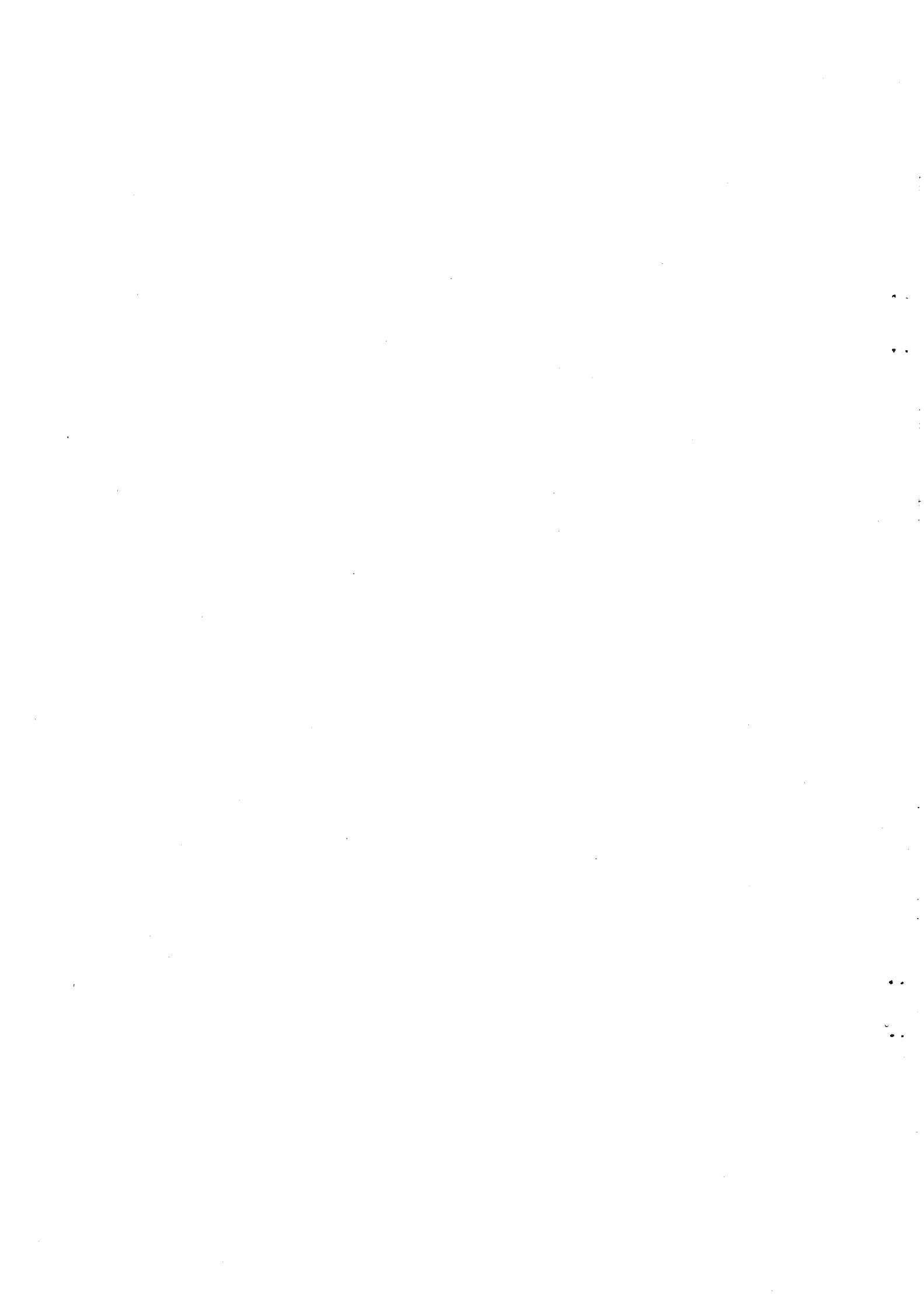
2-16. PICTURE TUBE REMOVAL



DISASSEMBLY

2-17. CONTROL PANEL ASSEMBLY REMOVAL





SECTION 3

CIRCUIT DESCRIPTIONS

3-1. QA, QB, BA BOARDS

3-1-1. Input Circuit

Cable Compensation (QA, QB)

CABLE COMPENSATION is composed of inductance L and capacitor C1 (Figure 1) in QA board and performs return loss compensation.

Grounding or floating in input terminal can be selected by switch S1.

On floating mode, common mode rejection can be performed. QB board also has same function.

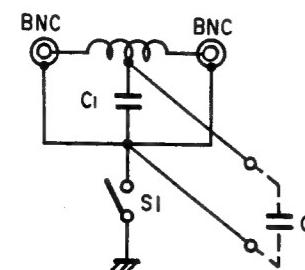


Figure 1

Hook Up Circuit (BA)

This circuit is composed of transistors Q101-105 and performs common mode rejection when SW S1 is selected to the floating mode.

In Figure 2, Gains of amplifier for input A and B are derived as follows.

$$A = \frac{R_c}{R_i} : \text{Gain of amplifier for input A}$$

$$B = -\frac{R_c}{R_i} : \text{Gain of amplifier for input B}$$

When input $(ec + ei)$ is applied to input A and input $(ec - ei)$ to input B, then output eo is

$$eo = \frac{R_c}{R_i} (ec + ei) + (-\frac{R_c}{R_i}) (ec - ei) = 2 \frac{R_c}{R_i} ei$$

This equation indicates that ec is eliminated and there is no common mode signal in output signal.

On hook up circuit, NF Amplifier (Negative Feedback) is used to get frequency response flat.

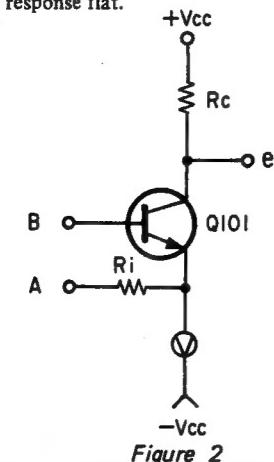


Figure 2

Input Select Sw, Sync Select SW (BA)

For composite video signal, VIDEO A/B/TEST mode is selected by INPUT SELECT SW (IC1). For sync signal, INT SYNC/EXT SYNC is selected by SYNC SELECT SW IC2.

3-1-2. Sync AGC Circuit

This circuit is composed of following components; LPF (Low Pass Filter) (Q701), variable gain amplifier (Q702-Q705), bias control circuit (Q708-Q710), gain control circuit (Q711, 712) and amplifier (Q706, 707). Figure 3 shows block diagram of this circuit. An inverted composite video signal or composite sync signal (eo) is derived at the collector of transistor Q707. The bias control circuit compares maximum value of eo with base voltage of Q708 (E1) and controls bias of amplifier so that they match. Also the gain control circuit compares pedestal level of eo with base voltage of Q711 (E2), and controls variable gain amplifier so that they match.

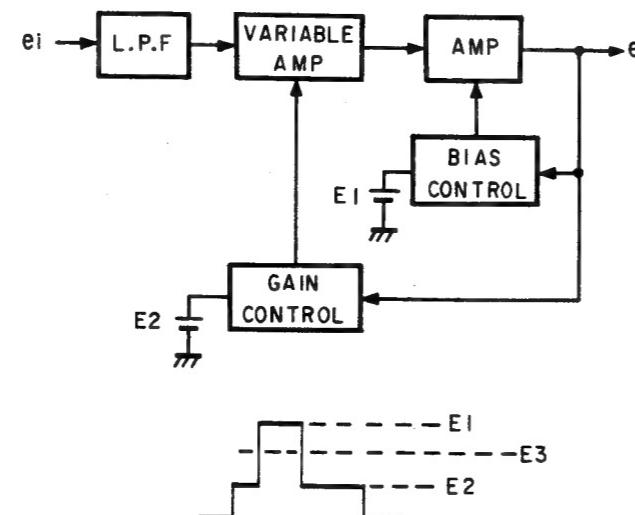
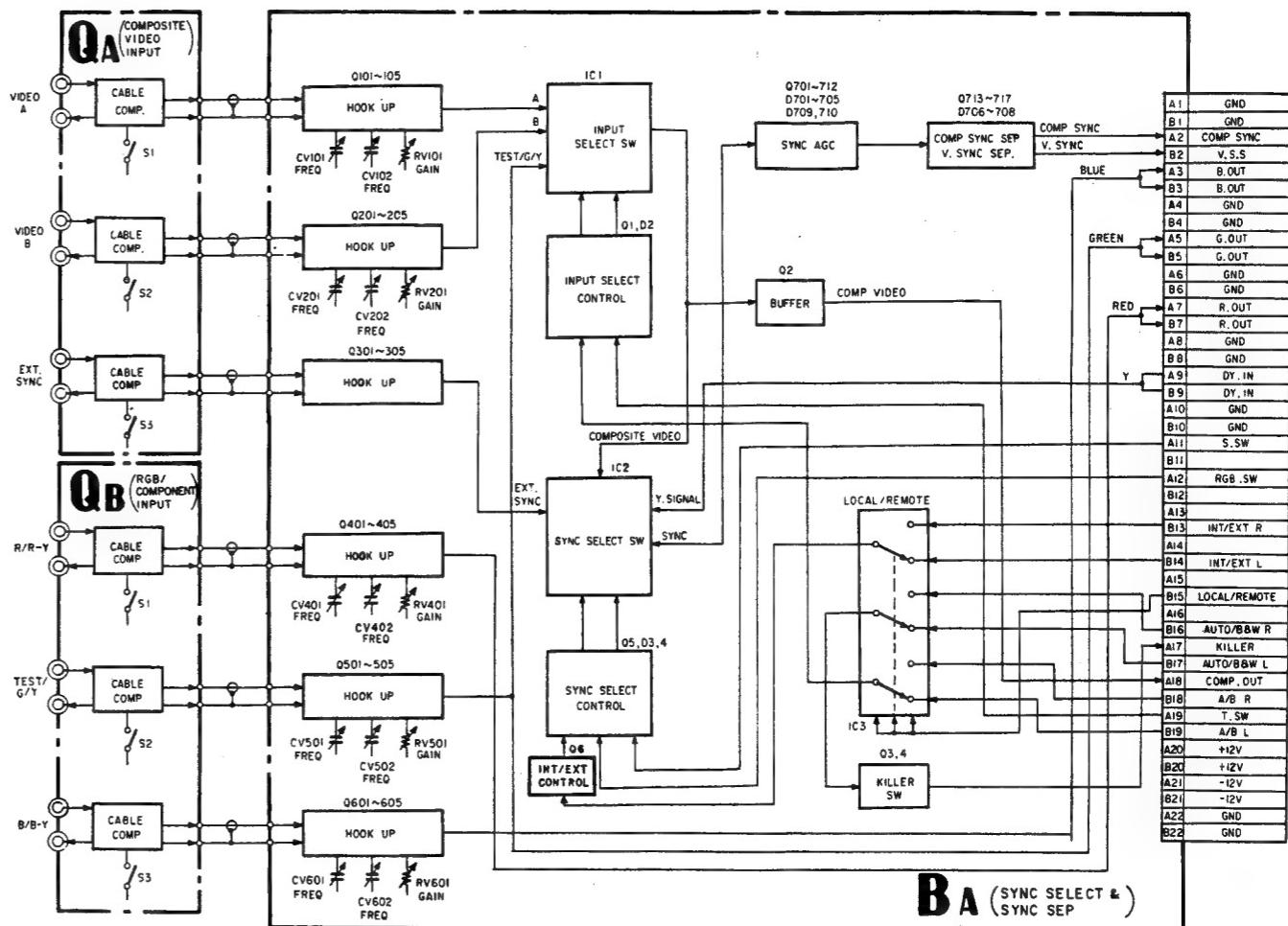


Figure 3

BLOCK DIAGRAM OF QA, QB, BA BOARDS



3-2. BG BOARD

3-2-1. Luminance Signal Circuit

Filter SW

IC1 works as a selector switch of composite video signal or luminance signal derived from Y/C separation circuit. This IC activates by either FILTER-SW in right side drawer or killer signal.

Aperture Control

Aperture control circuit is composed of DL1(delay line), transistors Q5, 7, 8 and IC2. IC2 operates as a variable resistor. Resistance value between Pin① and ③ is controlled by the potential between pin ③ and pin ④, also pin ① and pin ⑥.

Input signal: e_{ro} ,
Delayed signal by delay line: e_{r1}
Second delayed signal: e_{r2}

See Figure 4
 e_1 (at base of transistor Q5) is obtained as below due to the combination of direct wave and reflected wave by DL1.

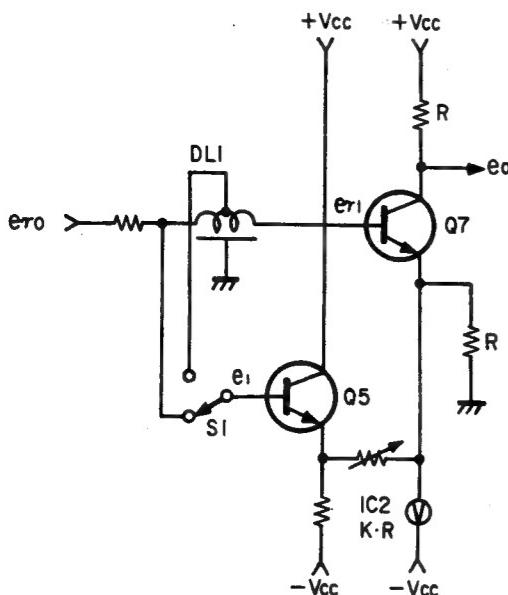


Figure 4

$$e_1 = (e_{ro} + e_{r2})/2$$

Therefore e_0 is

$$e_0 = -\left(\frac{e_{ro}}{K} + \frac{1}{2}(e_{r1} - \frac{1}{2}(e_{ro} + e_{r2}))\right)$$

1st term 2nd term

K: variable constant

In the above equation, 1st term shows waveform A in Figure 5 and 2nd term shows waveform B. When K is variable, amount of pre-shoot and overshoot can be varied.

Switch SI is used for selection of boost frequency.

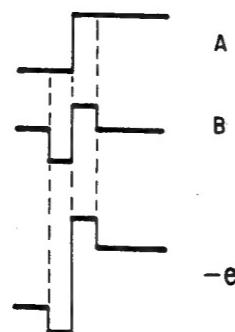


Figure 5

Y Delay, Y Buffer Amplifier

Y/C delay time can be matched by delay line DL2 and Y signal is amplified and fed to the next stage.

3-2-2. Color Gain Control Circuit

In this section (R-Y) signal processing is described as below, but (B-Y) signal is processed by the same way as (R-Y) signal.

R-Y Amplifier and Clamping

The R-Y color difference signal from the decoder board is amplified at the amplifier composed of transistors Q21 and Q22 and clamped at the Horizontal Sync by transistors Q23, Q24 and IC3.

R-Y Gain Control Amplifier

This is a variable gain control amplifier composed of variable resistor element of IC4 and transistors Q25-Q27. Gain of this amplifier can be controlled by the color gain control voltage at the pin ⑫ of IC4.

AGC Pulse Generator

Generates the reference pulse for AGC (Automatic Gain Control) of color gain control circuit.

Gain Control Amplifier for AGC Pulse

Circuit is the same as R-Y GAIN CONTROL AMPLIFIER. Gain of this amplifier is controlled by the voltage at pin ⑧ of IC4.

Color Gain Control

AGC pulse, which is output signal of Gain control amplifier for AGC pulse, is clamped by IC6 (2/3) and is made sampling by IC6 (3/3). Amplitude of AGC pulse and DC voltage supplied from CHROMA control on the front panel are compared and matched by IC7 (1/2) with controlling the above gain control amplifier. This control voltage is supplied to the control terminals of R-Y and B-Y gain control amplifiers and controls color gain.

3-2-3. G-Y MATRIX amplifier

G-Y signal is obtained by matrixing R-Y signal and B-Y signal with the amplifier composed of transistors Q44 and Q45.

3-2-4. NTSC MATRIX SW

NTSC MATRIX mode operation is obtained by the matrix circuit composed of resistor networks CP14-CP19, transistor Q29, Q30, Q39, Q40, Q49, Q50 and IC5. CP14-CP19 perform matrixing and IC5 works as a switch.

3-2-5. Vector Output Circuit

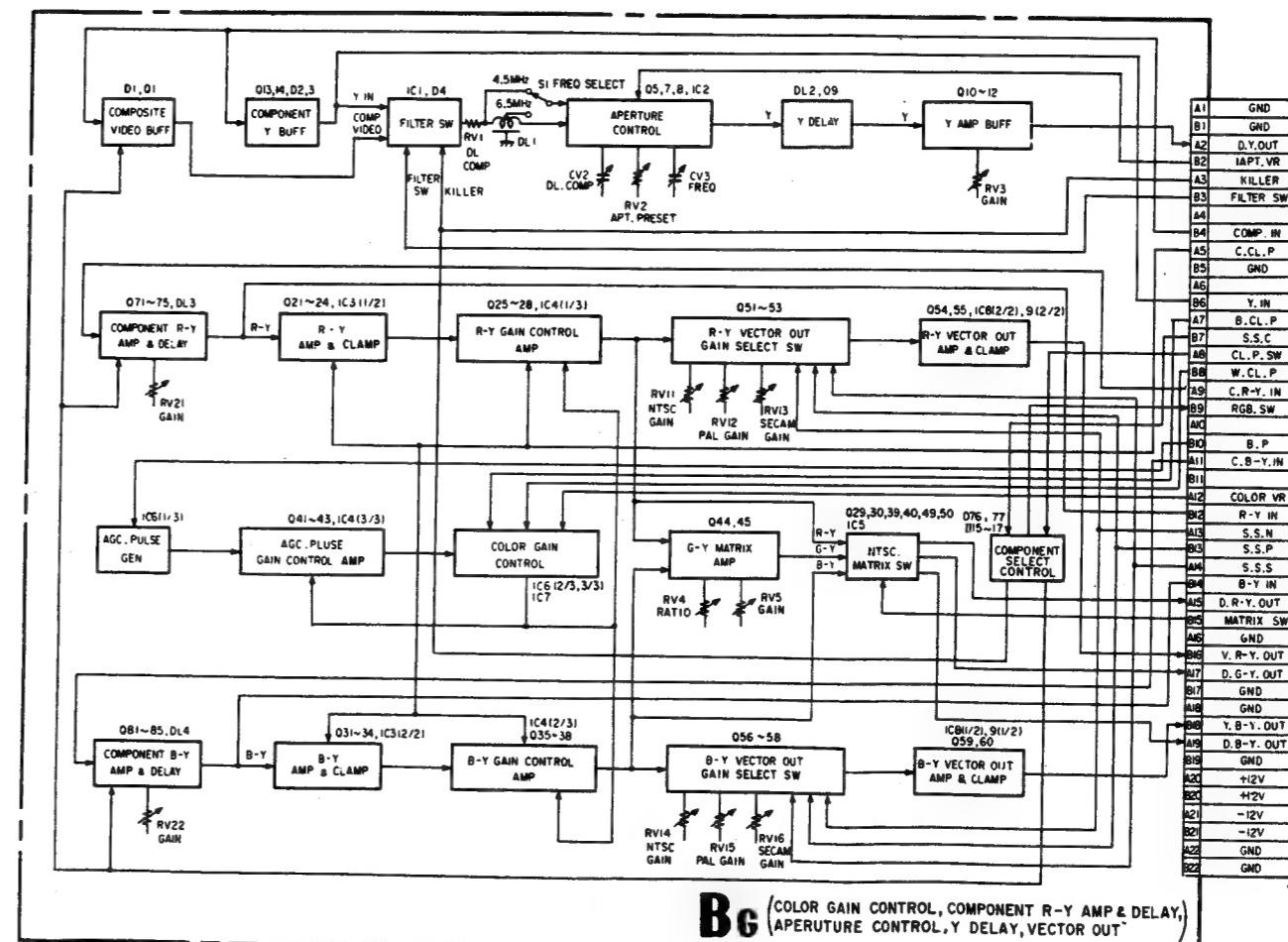
R-Y Vector Output Gain Switcher

Vector output levels are compensated for each color standards, NTSC, PAL and SECAM.

R-Y Vector Output Amplifier and Clamping

Vector output signal is amplified by IC9 (2/2) and transistor Q54 and clamped by IC8 and transistor Q55 for the suitable operation.

BLOCK DIAGRAM OF BG BOARD



BG (COLOR GAIN CONTROL, COMPONENT R-Y AMP & DELAY, APERATURE CONTROL, Y DELAY, VECTOR OUT)

3.3. BH BOARD

3.3.1. Switching Circuit Between Y (Luminance) Signal, Color Difference Signal and RGB Signal, AGC Pulse Insertion, Y-C Matrix

Switching Circuit of Y Signal, Crosshatch Signal and SET UP Signal, Buffer

Y signal, crosshatch signal and SET UP signal are selected by the switcher (IC1 (1/3) (2/3)) and selected signal is output via buffer Q1.

Switching Circuit of R-Y Signal, Red Signal and SET UP Signal (Same as B-Y, G-Y Signal)

R-Y signal, Red signal, SET UP signal are selected by IC2 (1/3, 2/3) and selected signal is output via buffer Q4.

Y Signal Screening (Same as R-Y, B-Y, and G-Y Signals)

The signal is performed SAMPLE and HOLD (S/H) at the back porch of signal by transistor Q2 and ICS (2/2). Y screening is performed by replacing S/H output signal, by the original signal.

For color difference signals screening is made at the Horizontal Sync portion.

Red Matrix, Blue Only SW, Buffer (Same as Green and Blue)

Red is obtained by Y-C matrix circuit composed of resistor network CP9 from color difference signals.

AGC pulse from pulse generator is inserted into Red signal for contrast control.

IC7 activates by the Blue only SW on the front panel. Blue only SW is used for the display of blue signal as a monochrome picture.

3.3.2. Contrast Control, Brightness Control, Peak Limitter

Red Contrast, and Brightness Control Amplifier (Same as Green and Blue)

This is a variable gain control amplifier composed of variable resistor element IC101 and transistor Q102 and Q103. By controlling the voltage at pin ④ of IC101, contrast control is performed, and brightness control is done by controlling the bias voltage of transistor Q102.

Red limitter (Same as Green and Blue)

When excess input signal comes in, amplitude is limited by the limitter composed of transistors Q104 and Q105.

Red Contrast Control

AGC pulse inserted in Red signal is clamped by transistor Q107 and sampled by transistor Q108.

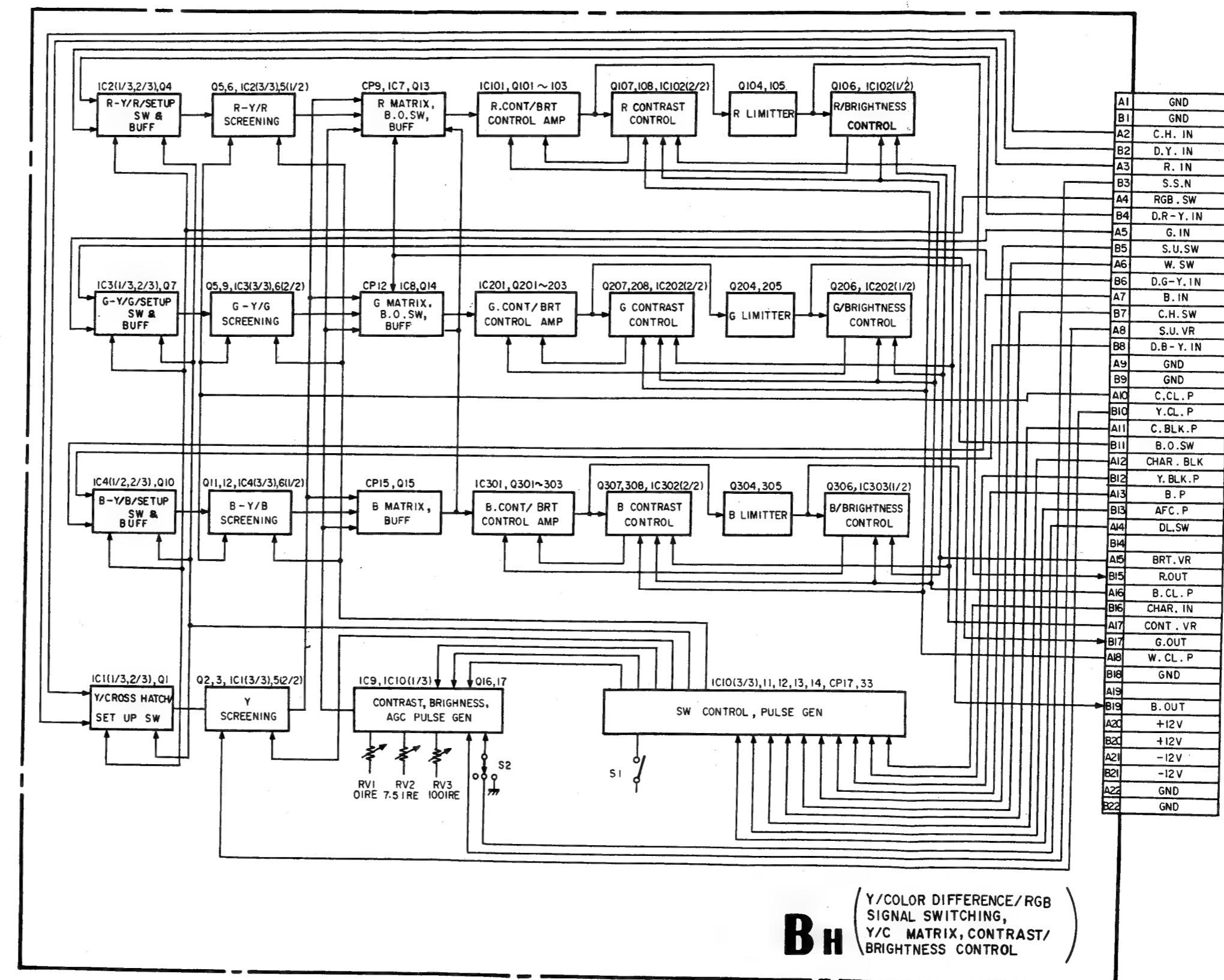
Amplitude of above AGC pulse is compared with the reference voltage applied from CONTRAST control on the front panel in IC102 (2/2).

Contrast control is performed by controlling the gain of Red contrast brightness control amplifier so that these voltages may match.

Red Brightness Control (Same as Green and Blue)

The black level of Red signal is performed SAMPLE and HOLD (S/H) by transistor Q106. This S/H voltage is compared with the reference voltage applied from Brightness control on the front panel in IC102 (1/2). Brightness control is performed by controlling the bias of Red contrast Brightness control amplifier so that these voltages may match.

BLOCK DIAGRAM OF BH BOARD



3-4. BI BOARD

3-4-1. Red Screen SW,AGC Pulse Insertion (Same as Green and Blue)

Red signal can be cut off by RED SCREEN SW on the front panel. Horizontal rate AGC pulse is removed and the reference pulse is inserted in the signal for the GAIN and BIAS adjustment of video output amplifier and for the beam control circuit.

3-4-2. Red Limitter, Gain Bias Control Amplifier

This limitter is used for limiting the excess input level of the signal below 0V DC.

The GAIN/BIAS CONTROL amplifier is composed of variable resistor element and transistors as same as contrast control amplifier' (See section of BH board)

3-4-3. Red Feedback Amplifier, Red Gain Control Red Bias Control Circuit

RED FEEDBACK amplifier inverts the phase of the signal derived from VIDEO OUTPUT amplifier via NF BUFF (Negative Feedback Buffer) in BK board.

The BIAS of VIDEO OUTPUT AMPLIFIER is controlled by RED BIAS CONTROL circuit so that the black level of inverted signal may be 0V DC.

(This time, black level of VIDEO OUTPUT will be -90V DC.) RED GAIN CONTROL circuit controls the gain of VIDEO OUTPUT AMPLIFIER so that the level of the reference pulse may match to the voltage at pin ③ of IC+03.

(When GAIN control (RED) in the drawer is turned, the level of the reference pulse inserted in section 1 changes. And amplitude (Gain) of Red signal changes so that the amplitude of the reference pulse derived from RED FEEDBACK amplifier may be maintained constant by GAIN CONTROL circuit.)

3-4-4. Red Cathode Current Detection, Red G1 Control Circuit (I-V Conversion)

Refer to the BK board section of beam control circuit

3-4-5. ABL Detector, Drive Control, Over Drive

The reference level of GAIN CONTROL circuit is controlled by ABL detector and DRIVE CONTROL so that the cathode current of CRT exceeds the predetermined (Preset) value to prevent damage of CRT. OVER DRIVE circuit lights up the OVER LOAD LED on the front panel for warning.

3-4-6. G2 Control Circuit

Circuit diagram of G2 control circuit is shown in Figure 6.

The signal for G1 BIAS control is fed to base of the transistor Q11 from RED G1 BIAS control circuit. (Same as G and B)

Only one of the highest voltages among the base voltages of transistors Q11-Q13 is turned on and is compared with the reference voltage of base voltage Q14.

And this circuit drives transistor Q105 located in PA board so that Transistor Q105 in PA board drives G2 voltage for adjusting cut off level of CRT.

Base voltage of transistor Q14 (reference voltage) is set so that the voltage of Black level at G1 electrode may be -120V DC and maintain Ekco (cut off voltage) -120V constant.

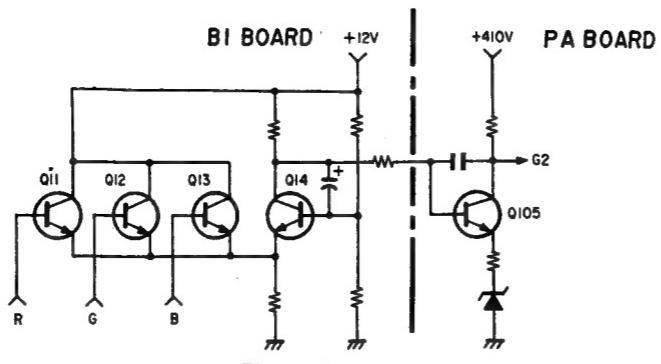
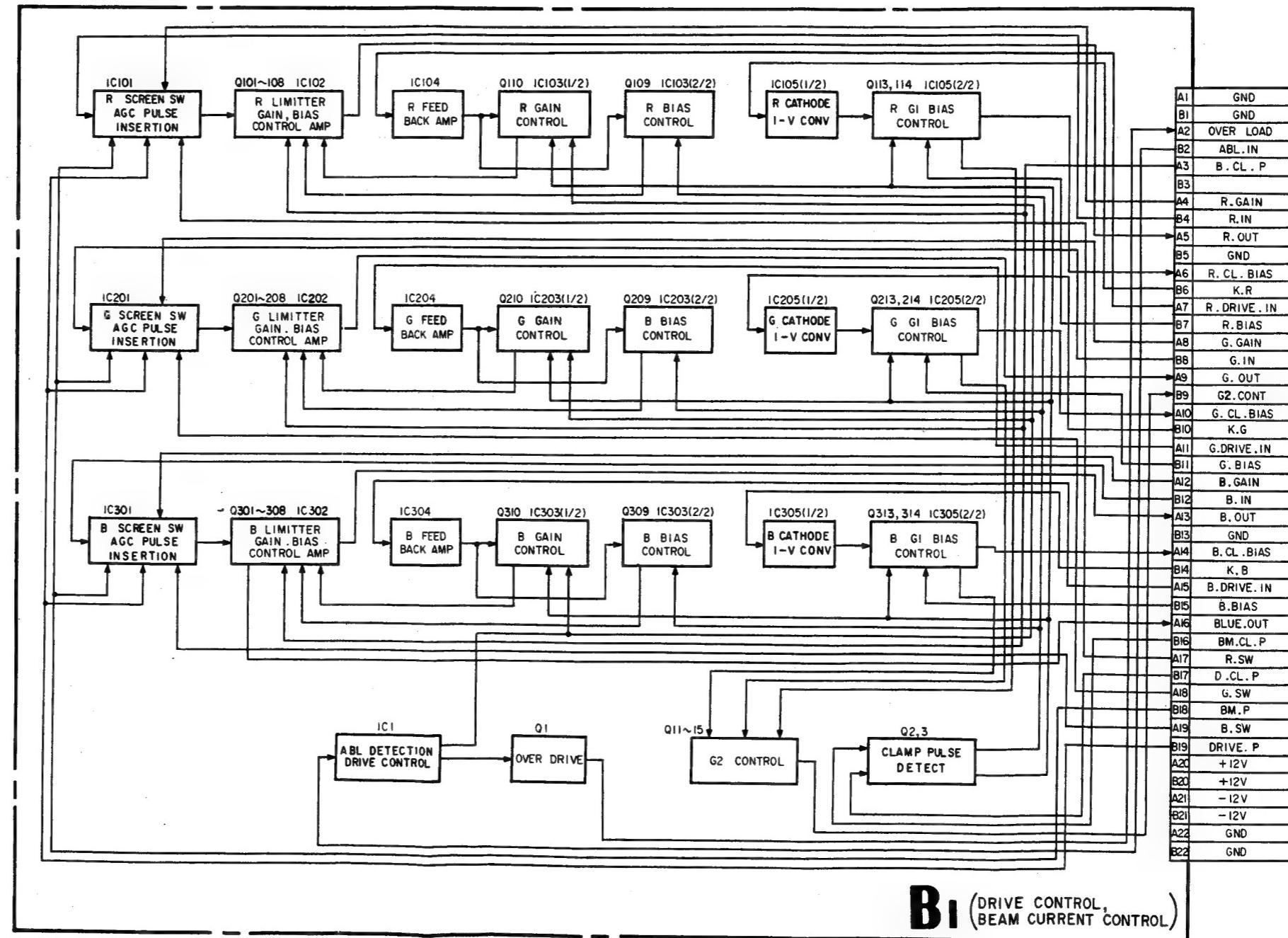


Figure 6

BLOCK DIAGRAM OF BI BOARD



3-5. SYNC PROCESSOR, PULSE GENERATOR (BJ BOARD)

3-5-1. 1H Pulse Processing

The composite sync is separated from incoming signal at BA board. And 1H sync is made by separating V sync and equalizing pulse from composite sync. Also H sync which has constant pulse width is made from 1H sync.

3-5-2. 2fH Multivibrator

This circuit generates 2fH rate pulse from H rate flyback pulse.

3-5-3. Vertical Counter

The 2fH rate pulse is counted down to generate Vertical rate trigger pulse for vertical deflection circuit. When there is no incoming signal, trigger pulse is generated by vertical counter (384H).

When there is incoming signal with V sync, this counter circuit is reset by V sync and generates trigger pulse synchronized with V sync.

Also in order to increase stability of vertical scanning, noise gating process is made during V sync period.

3-5-4. V Sync and Delay

V sync and V BLANKING pulses are generated by output trigger pulse from vertical counter. And when V DELAY SW on the front panel is selected ON, these pulses are generated in a V/2 delayed position relative to the V sync position of incoming signal.

3-5-5. Crosshatch Generator

Internal crosshatch signal is made as follows. The vertical lines are generated by approx. 18fH rate pulses synchronized with flyback pulse. And flyback pulse is counted down to generate horizontal lines.

3-5-6. Burst Gate Pulse, Y-CLAMP Pulse, C-CLAMP Pulse Generator

The Burst Gate Pulse (B.G.P.), clamp pulse for luminance signal (Y.CLP.) and clamp pulse for color difference signal (C.CLP.) are generated from 1H sync via LCR network and transistors.

3-5-7. Picture Set Up Pulse Generator

This is the gate pulse generator for picture set-up function, and consists of mono multipliers.

3-5-8. Split, Y Blanking, C Blanking Pulse Generator

Y BLANKING pulse (Y BLK P) and C BLANKING pulse (C BLK P) are generated. These pulses are used for the purpose of DC restoration of color difference signal, Y signal and RGB signal. DC restoration is made by inserting the black reference signal during blanking period in the signal. Also C.BLK. pulse is mixed with vertical rate blanking signals for SPLIT display and for B/W display.

3-5-9. Horizontal Rate AGC and Clamp Pulse Generator

COLOR GAIN control, CONTRAST control and BRIGHTNESS control are stabilized by insertion of reference signal and using feedback circuit. Horizontal rate BLACK pulse (B.P.), BLACK CLAMP pulse (B.CLP.) and WHITE CLAMP pulse (W. CLP.) are generated here.

3-5-10. Vertical Rate AGC and Clamp Pulse Generator

In this model, BEAM CONTROL circuit is used for high stability in white balance.

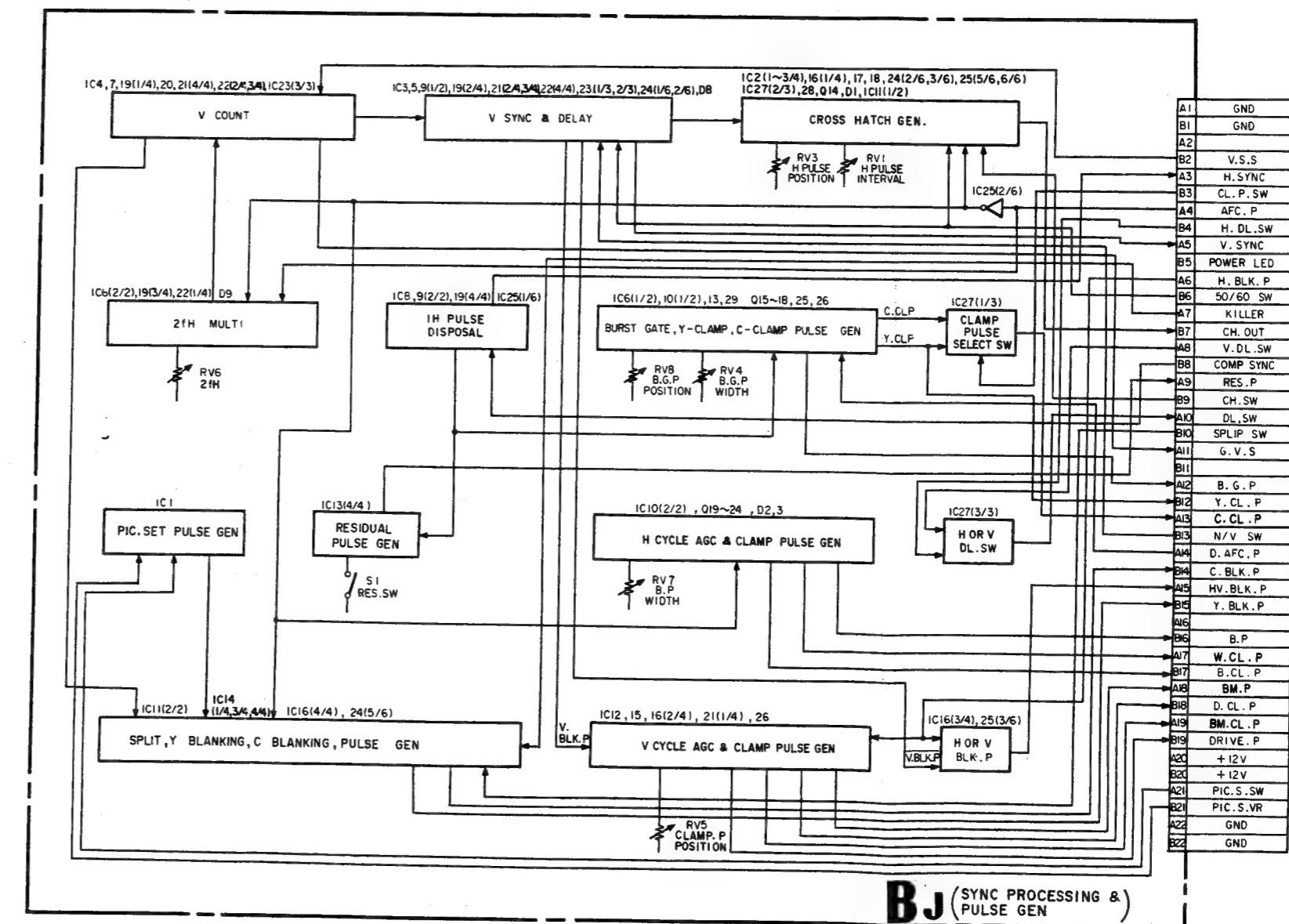
The reference signal is inserted in the signal for gain control circuit in video output amplifier and for beam control circuit. Vertical rate pulses are used for this purpose.

Vertical rate BEAM PULSE (BM.P) DRIVE PULSE (DRIVE.P) and BEAM CLAMP PULSE (BM.CLP) are generated here.

3-5-11. Others

Black reference is determined at the position of clamping in black reference insertion circuit for both color difference signal and RGB signal. Accordingly C.CLP is used as clamp pulse for color difference signal processing and Y.CLP is for RGB signal. CLAMP PULSE SELECTION SW switches C.CLP or Y.CLP to the clamp pulse for the insertion of black reference.

BLOCK DIAGRAM OF BJ BOARD



TIMING CHART OF MAJOR PULSE (BJ BOARD)

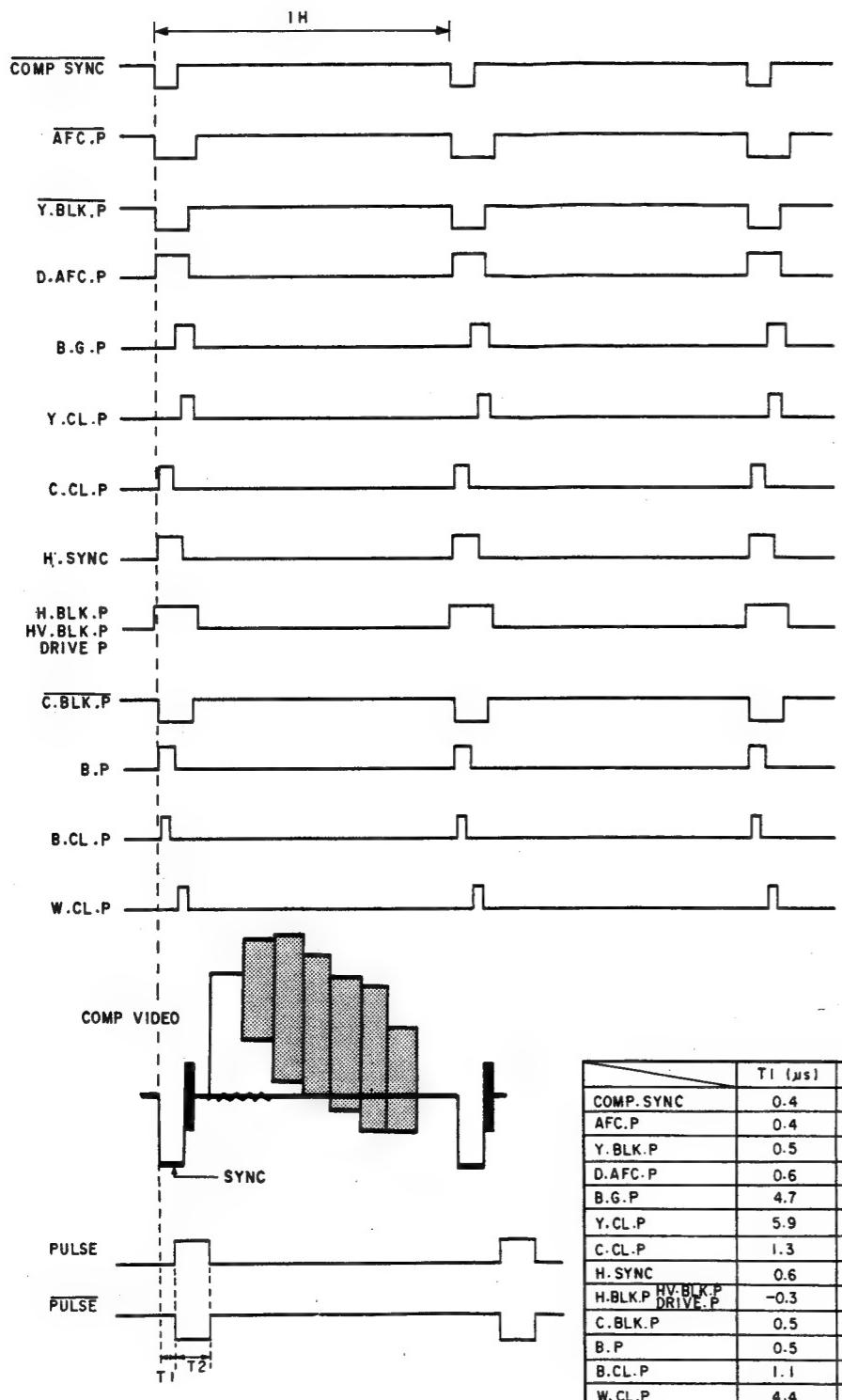


Figure 7

FIELD 1 VERTICAL BLANKING

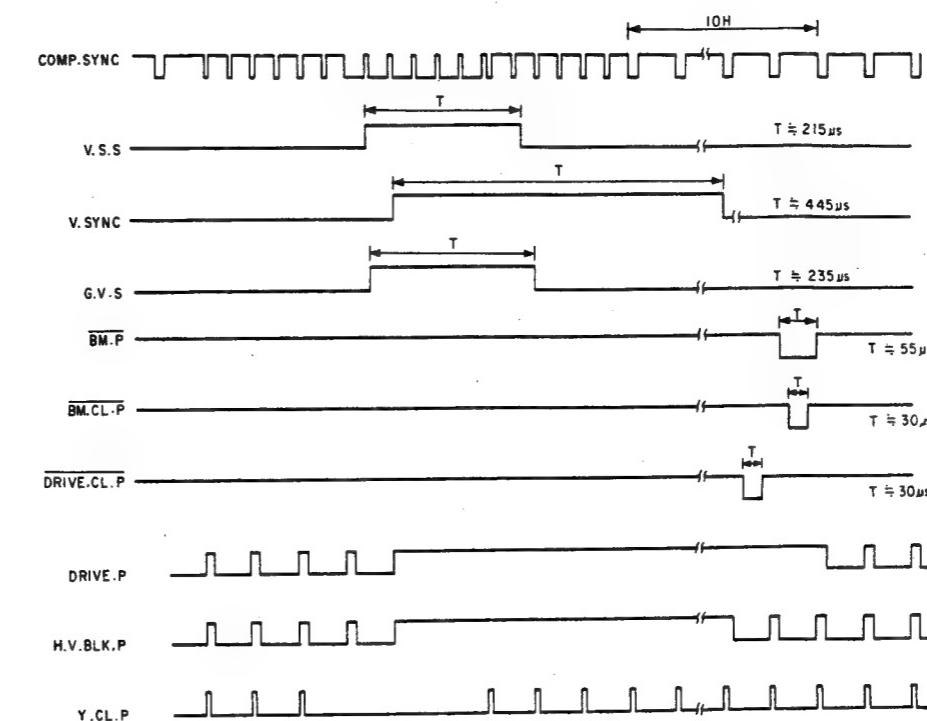


Figure 8

FIELD 2 VERTICAL BLANKING

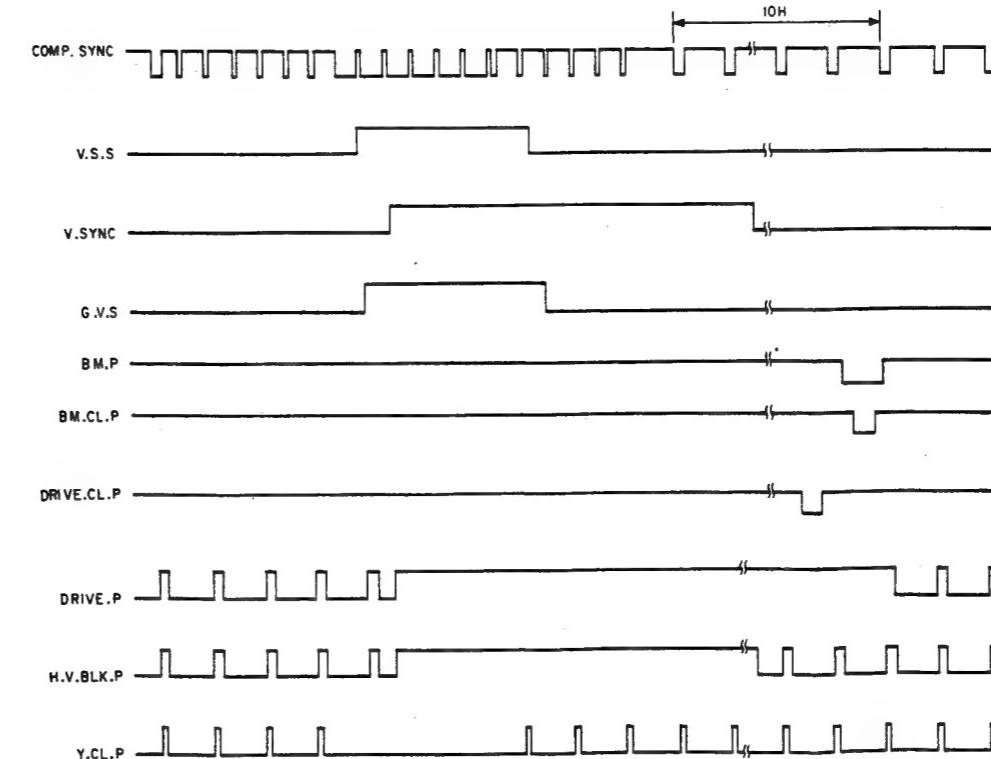


Figure 9

3.6. BK BOARD

Following are described about Red channel. Green and Blue channel are the same.

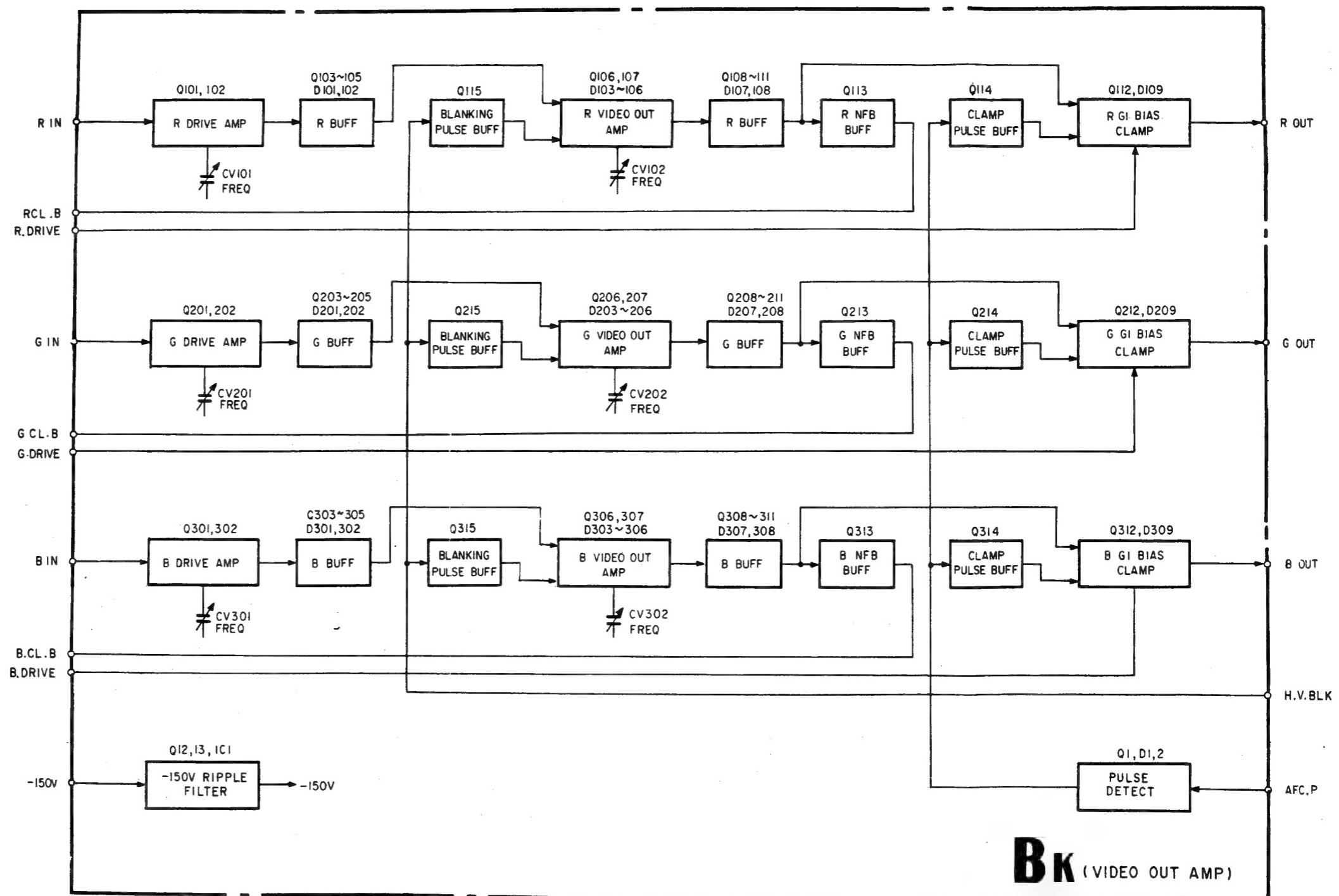
3.6-1. Red Drive Amplifier, Red Buffer

This circuit drives final stage of video output amplifier. Gain is approx. 2

3.6-2. Red Video Output Amplifier and Buffer

This is the final stage amplifier to obtain amplitude enough to drive G1 of CRT.
Gain is approx. 14
Also in this amplifier, BLANKING pulse is mixed with video signal.

BLOCK DIAGRAM OF BK BOARD



3-7. Beam control Circuit (BI, BK BOARD)
(Same as Green and Blue)

Block diagram is shown in Figure 10.

**3-7-1. Detection of Cathode Current and I-V Conversion
(BI BOARD)**

Cathode current is detected as a voltage by using IC105 (1/2)

3-7-2. Red G1 Bias Control (BI BOARD)

BMP is inserted in the signal during vertical blanking in BI board.
This BMP is detected as a cathode current and sampled by BM CLP applied to FET Q113.

This bias control circuit controls the base voltage of transistor Q114 so that converted voltage from cathode current and the reference voltage may match.

3-7-3. Red G1 Bias Clamp Circuit (BK BOARD)

Video output signal is clamped at the voltage of collector of transistor Q114 in BI board by using transistor Q112.

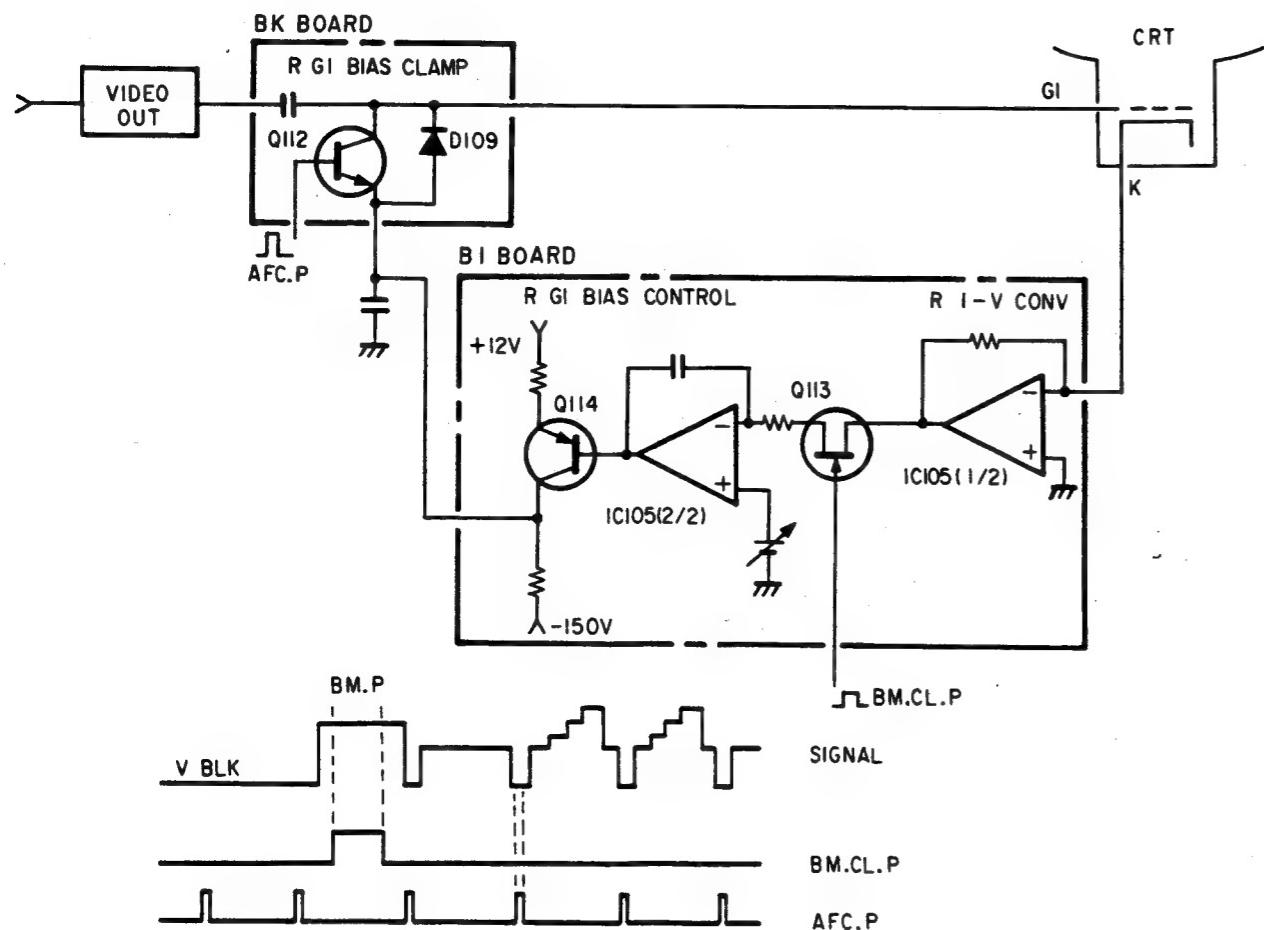


Figure 10

3-9. PAL-M DEMODULATOR, Y TRAP CIRCUIT (BM BOARD)

The composite video signal supplied from BA board is fed to transistor Q1 (buffer), then is supplied to the 3.58 MHz trap circuit with Y signal and to band pass filter with chrominance signal.

3-9-1. Chroma Band Pass Filter

The composite video signal obtained from at the emitter of transistor Q1 is fed to the Band pass filter composed of resistor R12, capacitor C7, C8, inductor L3 and transistor Q5.

The center frequency of this filter is adjusted to the subcarrier frequency (3.58 MHz) by L3, and chrominance signal is derived from Q5.

3-9-2. Residual SW Circuit

The chrominance signal derived at transistor Q5 is fed to analog switcher IC2.

When switch S1 on BJ board is set to ON position, residual pulse which has almost same phase as H sync is fed to control terminal of analog switcher (pin ③ of IC2) and screening is performed during H sync period.

When switch S1 on BJ board is set to OFF position, Low level signal (0V DC) is fed to control terminal and screening action is not performed. Thus residual switch circuit does not activate.

When there is residual subcarrier in the video signal, clamp level of color difference signal changes by turning switch S1 ON/OFF and therefore residual subcarrier can be checked on the picture as a color shift.

3-9-3. Chroma Amplifier Circuit

The chrominance signal from residual switch circuit (IC2 pin ④) is fed to chroma amplifier circuit (Q19, Q36).

After the chroma signal is amplified by the inversion amplifier (gain: 1X), it is voltage divided by resistors R400 and R314 and then input to the R-Y input terminal (IC1, pin ③) and B-Y input terminal (IC1, pin ②) of the following demodulator circuit via the buffer (Q38).

3-9-4. Phase Control Circuit

The chrominance signal from residual switch is also fed to phase control circuit (Q6, Q7, Q8, Q9, D12).

In this circuit, a variable capacitance diode (D10) is used to control the phase of color burst signal.

Anode voltage of D10 is applied by variable resistor RV8 and preset adjustment of phase is made by this variable resistor.

When the PHASE control on the right side of the front panel is turned, DC level of phase control signal (board terminal A13) changes and this phase control signal is fed to the cathode of D10 via analog switcher (IC5). In this way, Burst phase of chrominance signal is controlled according to the DC level of the phase control signal.

When PAL-D is selected with the PAL switch inside the right side drawer, between pins ③ and ④ of IC5 becomes conductive and phase control becomes dependent on RV7, disabling the Phase Control of the right side front panel.

Analog switcher IC5 (1/3) activates to make short-circuit between input terminal pin ③ or ⑤ and output terminal pin ④, only when COLOR STANDARD SELECTOR in the right side of drawer is selected to PAL and otherwise pin ⑤ kept open circuit. As above phase controlled chrominance signal is derived from collector of transistor Q9 and burst signal in this signal is gated by IC6. The gated burst signal is fed to the burst input terminal pin ⑪ of demodulator IC1.

3-9-5. PAL-M Demodulator

Block diagram of IC used for PAL demodulator is shown in Figure 12. This IC is designed for use of NTSC demodulator.

When chrominance signal is fed to pin ② and pin ③, color burst signal to pin ⑪ and Burst Gate Pulse (B.G.P.) to pin ⑬, R-Y and B-Y color difference signals are obtained at output terminals pin ⑬ and pin ⑭.

The demodulation axes of this demodulator are R-Y axis and B-Y axis. Variable capacitor CV1 is adjusted so that the phase angles between them are 90°.

Local oscillator (3.58 MHz) is formed by CW oscillator in IC1 connected to the terminal pin ⑤, ⑥, ⑦, ⑧ and external circuit.

The variable capacitor CV2 is adjusted so that the free run frequency may be subcarrier frequency 3.575611 MHz.

Also APC (Automatic Phase Control) circuit is formed by APC section in IC1 connected to the terminal pin ⑨ and ⑩ local oscillator is controlled by APC circuit.

The color difference signals demodulated by this IC are fed to low pass filter, where high frequency component is removed, then R-Y and B-Y color difference signals are obtained.

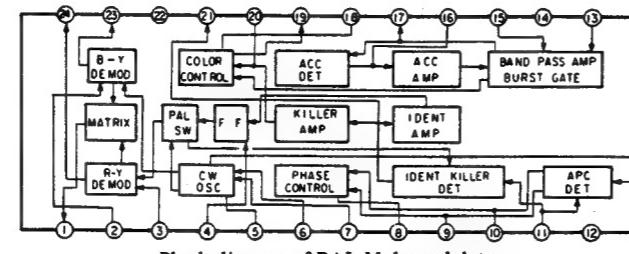


Figure 12

3-9-6. PAL-D Matrix and PAL S/D Switching Circuit

This circuit is further divided into circuits for the R-Y and B-Y signals, but the operation of both circuits is the same. So only the R-Y one will be explained.

R-Y signals input from the demodulator circuit are input to Q20 (BUFF) and Q21 (BUFF).

The signals input to Q21 are then input to pin ② of the analog switcher (IC5). When PAL S has been selected, between pins ② and ⑮ becomes conductive and the signals are supplied to the following circuit via Q33 (BUFF).

The signals input to Q20 are formed by IC7 and Q18.

Bias is controlled by a clamp circuit and is input to pin ⑯ of the 1H delay line (IC3). The DC level of the input is adjusted to the optimum value by using RV9.

IC3, driven by the 10.64 MHz clock signal generated by the clock generator circuit configured with XZ, Q34 and Q35, delays the input signal by 1H cycle and outputs it from pin ⑪.

The high frequency component of the signal thus output is removed by the low-pass filter configured with Q22 and Q23, after which the signal is input to the following PAL-D matrix circuit.

The PAL-D matrix circuit is configured with R100, R101 and Q24. The signal that was not delayed is input through R100 while the 1H delayed signal is input through R101 at a ratio of 1/2.

The PAL-D signal added to the base of Q24 is obtained from its emitter. The signal obtained from the Q24 emitter is input to pin ① of IC5. When PAL-D is selected, between pins ① and ⑮ becomes conductive and the signal is supplied to the following circuit via Q33 (BUFF).

3-9-7. 3.58 MHz Trap Circuit, Phase Compensation, Y Delay Correction Circuit

The composite video signal from the emitter of transistor Q1 is fed to 3.58 MHz trap circuit composed of resistor R5, R6, R7, capacitor C1, C2 and inductor L1.

Adjustment of L1 is made so that the resonance frequency of this trap circuit should be subcarrier frequency.

Y (Luminance) signal removed subcarrier is obtained at output terminal of the trap circuit and is fed to the phase compensation circuit. (Transistor Q2, resistor R8, R9 R10, inductor L2 capacitor C4)

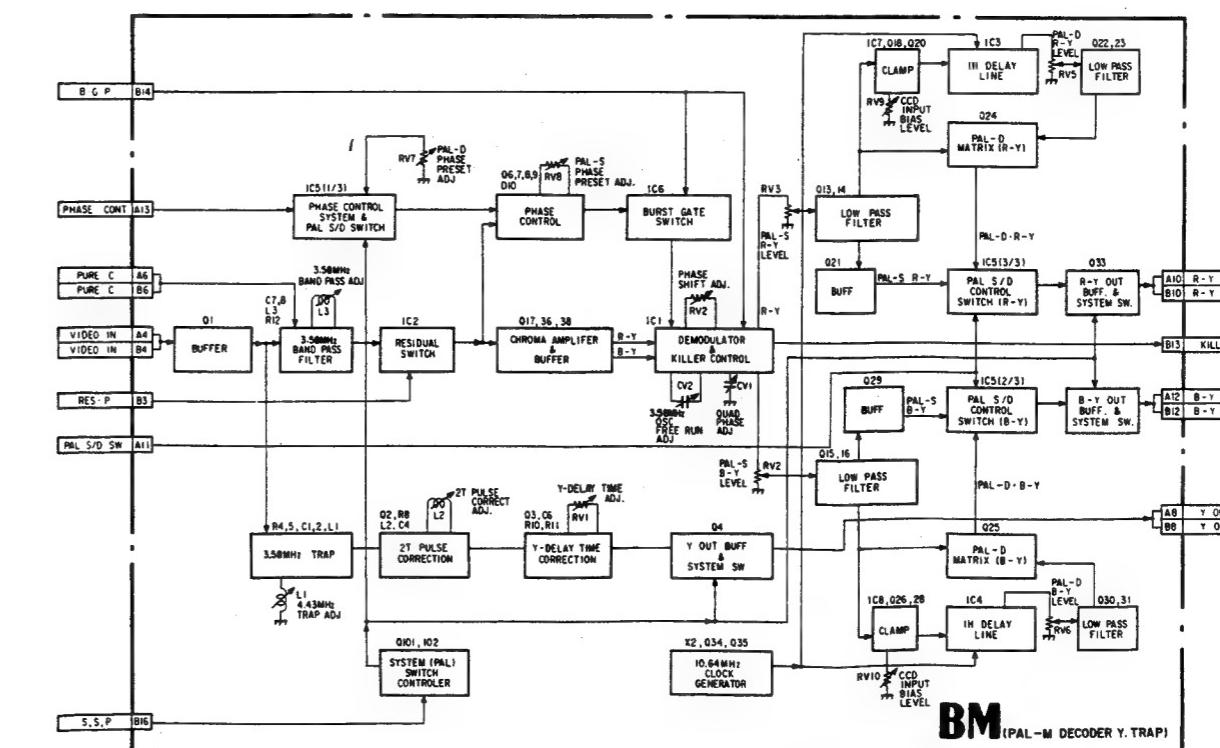
This circuit compensates phase delay of the signal at high frequency due to the trap circuit.

Y signal compensated phase delay is fed to Y-delay circuit. In this circuit Luminance/Chrominance time error is compensated by delay line.

3-9-8. Color Standard Selector

When PAL system is not selected by the COLOR STANDARD SELECTOR in the right side drawer, transistor Q101, Q102 are cut off and ±12V line power source is not supplied to the demodulator circuit.

BLOCK DIAGRAM OF BM (PAL-M) BOARD



3-10. VERTICAL DEFLECTION OUTPUT CIRCUIT CONVERGENCE OUTPUT CIRCUIT (EB BOARD)

3-10-1. Vertical Deflection Output

Vertical Deflection Output amplifier is composed of DC coupled SEPP (Single Ended Push Pull) amplifier (Q1~Q5) and boost up circuit.

This boost up circuit contains transistors Q7 and Q8 to reduce power consumption by applying the voltage to the output transistor during vertical retrace time.

Both vertical rate saw tooth waveform and correction waveform for top and bottom pincushion are generated in DA board and fed to output amplifier. Vertical centering is performed by changing DC level of vertical rate sawtooth because Vertical DY (Deflection Yoke) is connected to output amplifier directly.

3-10-2. Convergence Yoke Output Circuit

CY (Convergence Yoke) is used for adjustment of misconvergence of vertical direction. This CY is driven by SEPP (single ended push pull) amplifier (Q9~Q13) and connected directly. Correction waveform is provided from DB board.

3-10-3. DCT (Dynamic Convergence Transformer) Output Circuit

This circuit is used for adjustment of misconvergence for Horizontal direction.

DCT is also driven by SEPP amplifier (Q14~Q19) and AC coupled to it.

Correction waveform is provided to the primary of DCT and transferred to the secondary windings, output voltage of secondary windings is applied to CV electrode of CRT (picture tube) and performed convergence adjustment.

Circuit diagram shown in Figure 13 is the theory of basic DCT circuit.

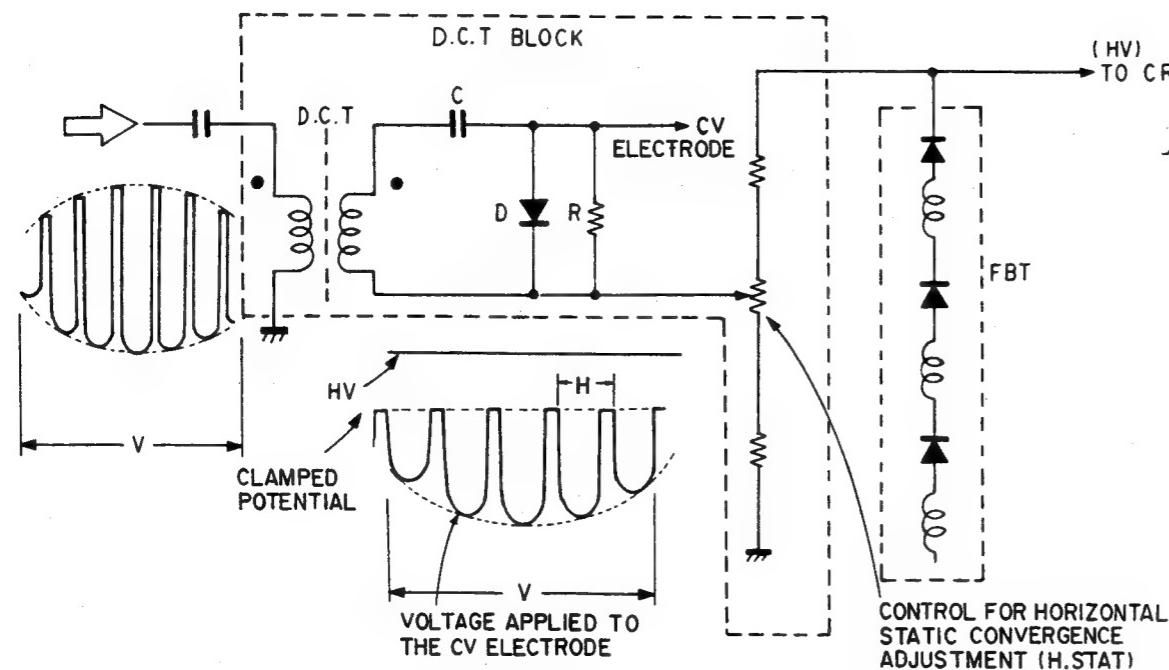
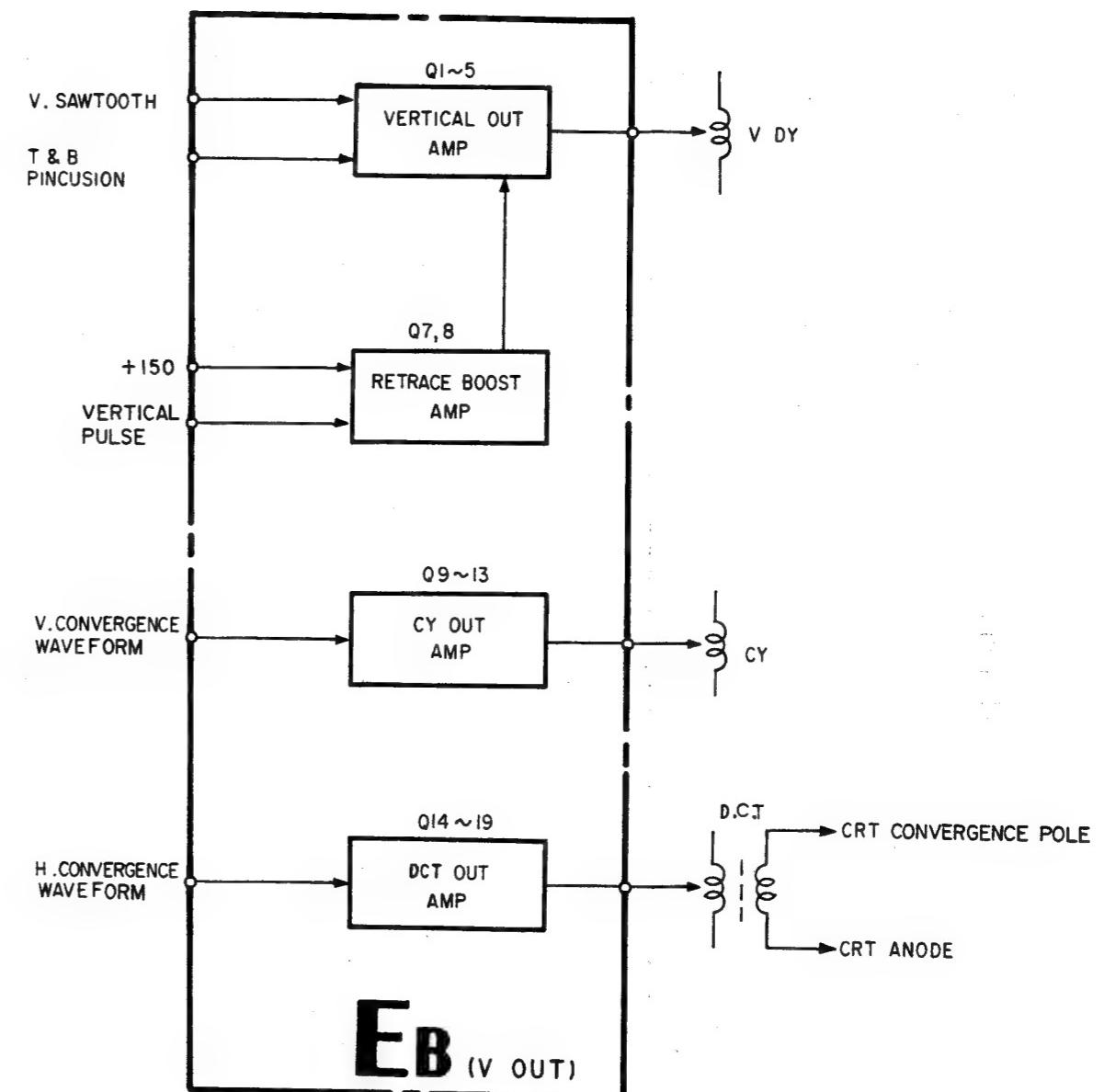


Figure 13

BLOCK DIAGRAM OF EB BOARD



3-11. POWER SUPPLY CIRCUIT (GA, GB BOARDS)

3-11-1. AC Power Supply, Rectifier Circuit

Voltage selector located at the rear side of the unit should be selected to the local line voltage (AC 100/120V or 220/240V).

In case of AC 100/120V selected by voltage selector, rectifier D21 capacitors C80 and C81 operate as a double multiple rectifier.

See Figure 14(a).

In case of AC 220/240V selected by voltage selector, rectifier D21 capacitors C80 and C81 operate as a full-wave rectifier.

See Figure 14(b).

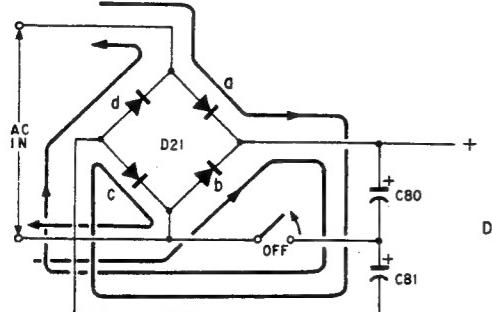


Figure 14(a)

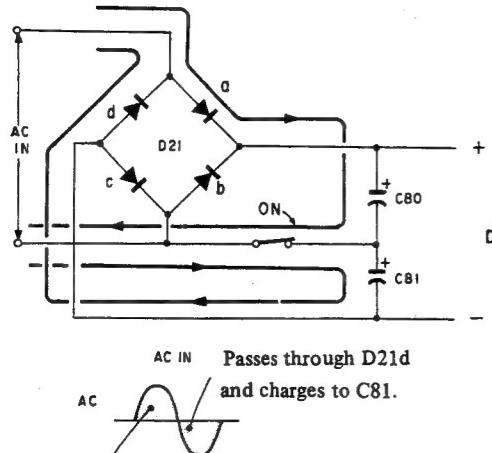


Figure 14(b)

3-11-2. Degauss Circuit

There are 2 posistors (PTH1, PTH2) in the degaussing circuit. One is used for AC 100/120V operation, the other is for AC 220/240V operation, these posistors are switched by voltage selector.

This degaussing circuit is turned ON and OFF by using Relay (RY1) automatically.

When power is turned ON, Automatic degaussing starts to work and a few seconds later stops automatically.

Also Manual degaussing is available if necessary after a few minutes power is turned on when posistor (PTH1 or PTH2) gets cool down. This manual degaussing is operated by a push of button (Degauss Switch) at the left of the front panel.

When degaussing circuit starts to work, Q11 transistor turns on by time constant circuit composed of resistors R88, 91 and capacitor C74. Q11 drives Q12 transistor. Relay (RY1) is driven by Q12. Time constant circuit keeps degaussing circuit to activate for several seconds until degaussing is finished.

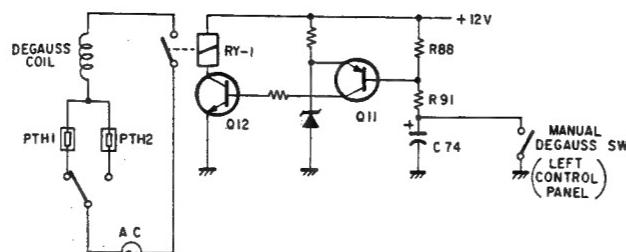


Figure 15

3-11-3. Starter Circuit

Blocking oscillator composed of IC1 and T4 starts working by turning the power on. DC output voltage of the rectifying-circuit, D7 and C57 in T4 secondary circuit, is supplied to the regulator-circuit IC (IC2 and IC3) with line voltage of 50 to 70V AC (at 110/120V AC) by function of the start-rectifying circuit (Q7, Q8, Q9). And the regulator circuit starts working and as +15V-line works, the voltage is supplied to the regulator-circuit IC through D20. At the same time, a voltage for stopping the blocking-oscillator operation is provided to IC1 from the primary winding⑥-⑦ of the switching regulator transformer SRT2.

3-11-4. Switching Regulator Circuit

Block diagram is shown in Figure 16. This is half bridge type of switching regulator in this model.

Following Description is the Theory of Half-Bridge Switching Regulator.

DC voltage E_{IN} rectified from AC voltage in AC power rectifier section is divided by capacitor C1 and C2. C1 and C2 have almost same value. Q1 (contains 2 transistors) operates as a switch driven by PWM modulated pulse via T2 (Drive Transformer). Switching current flows through primary windings of T1 (SRT) by switching transistor Q1 via T3 (Current Transformer). Thus output voltages are generated at secondary windings of T1.

Practical Circuit Used in this Model

There are 2 switching regulators in this power supply. One is for low voltage power supply, ±15V, ±18V and +5V. The other is for high voltage ±150V power supply.

Low voltages are generated by IC2, T1, T2, T3 and Q2

High voltages are generated by IC3, T6, T7 and Q2

Refer to block diagram

Current Transformer T3 and T7 detects excess current in transistor Q1 and Q2 for the protection of damage.

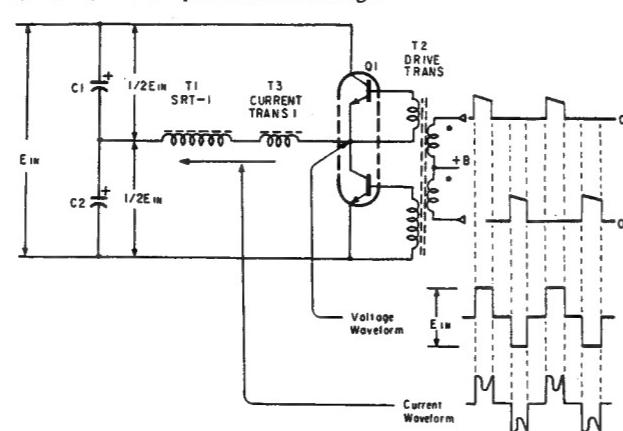
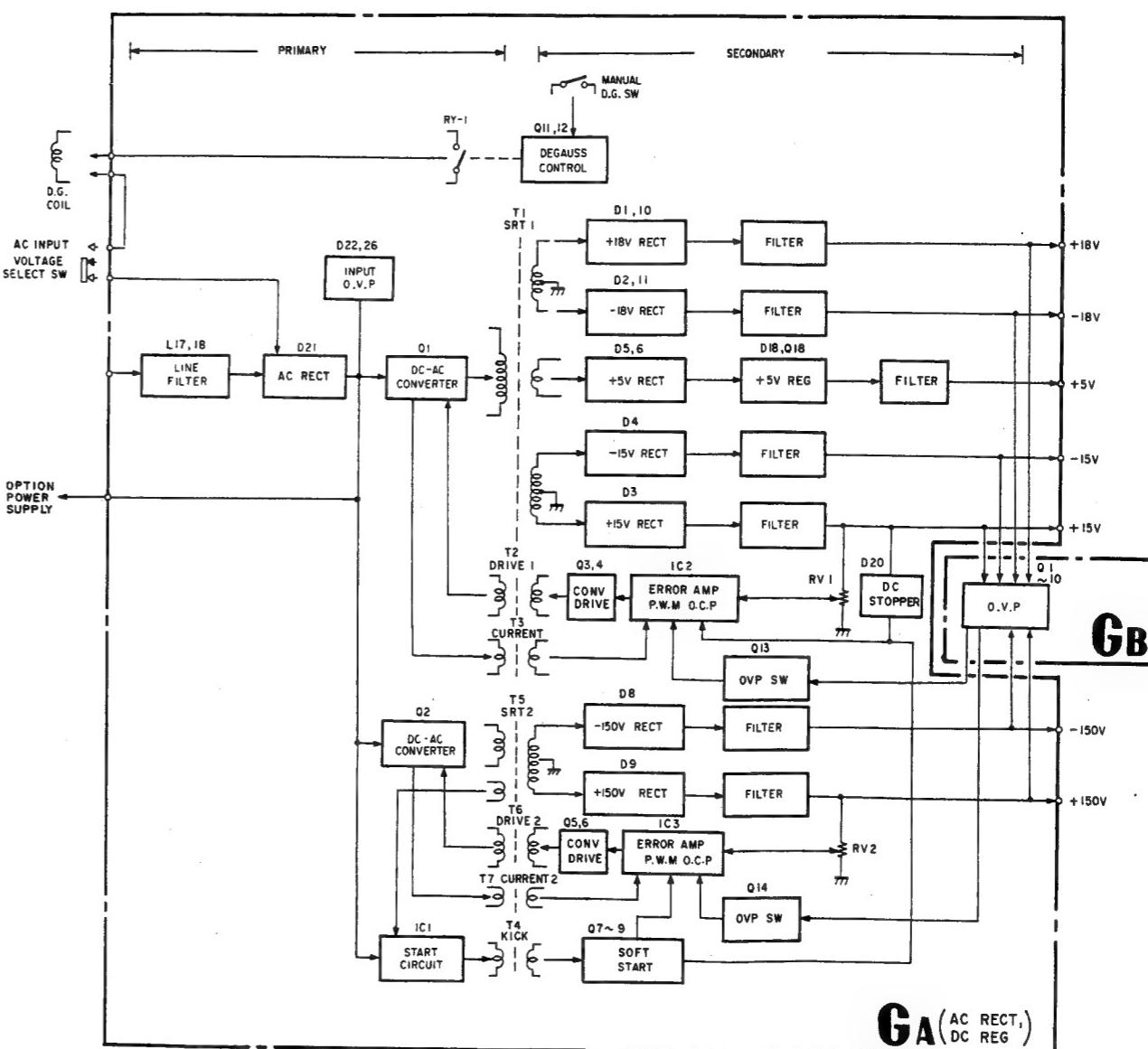


Figure 16

3-11-5. Over Voltage Protector

GB board, mounted on the GA board, is a protection circuit that when the output voltage surpasses the rated value for some reason, it makes short-circuit the CT (frequency-determination capacitor) on IC2 and IC3 and the regulator stops its operation to protect the circuits.

BLOCK DIAGRAM OF GA, GB BOARDS



GA (AC RECT, DC REG)

3-12. CONVERGENCE CIRCUIT (DB, DC BOARDS, DCT BLOCK)

3-12-1. General Description

This is a simple explanation of the convergence system in Super fine Trinitron picture tube used in this model. The Deflection Yoke (DY) used in this model generates an almost uniform magnetic field in order to get fine beam spot size. Accordingly basically misconvergence of horizontal direction as shown in Figure 17 is generated on the picture screen.

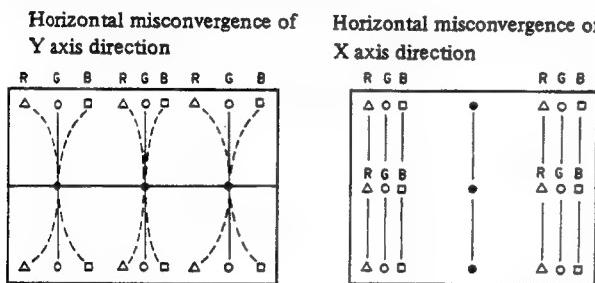


Figure 17

3-12-2. Static Electrical Convergence System

Trinitron system has a unique static convergence system. The structure of electric gun is shown in Figure 18. G6 is the electrode for convergence. Static electrical convergence control can be used. In this system beam spot deterioration is less than that of the electromagnetic system.

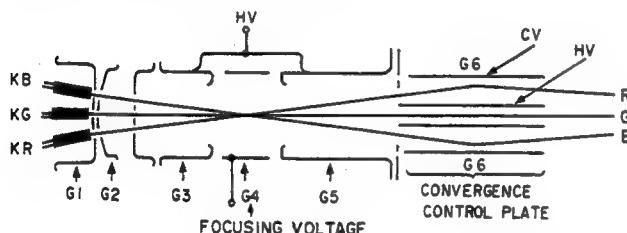


Figure 18

3-12-3. Convergence Correction Circuit (Horizontal Convergence)

Misconvergence of horizontal direction on Y axis is corrected by applying vertical rate parabola waveform to the convergence plate (G6)

And misconvergence of horizontal direction is corrected by applying horizontal rate parabola waveform to G6.
See Figure 19.

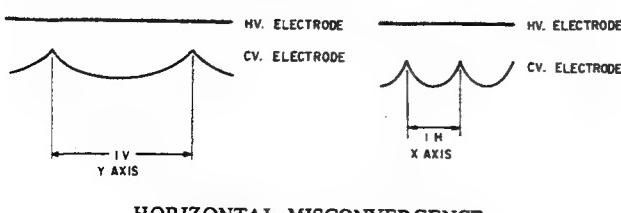


Figure 19

In this model, transformer is used to supply correction voltage to the G6 electrode for the horizontal direction misconvergence. In the secondary of the transformer peak clamp circuit using diode is applied so that both the vertical rate parabola waveform and horizontal rate parabola waveform are mixed and supplied to CV electrode. See Figure 20.

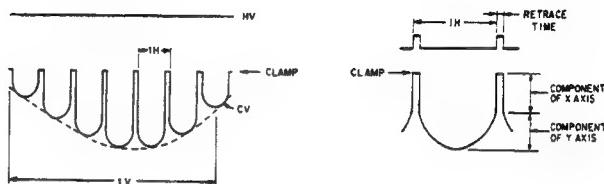


Figure 20

The correction waveforms are generated in DB board and output amplifier is located in EB board.

3-12-4. Vertical Convergence

Theoretically there is no misconvergence of Vertical direction since electric gun is aligned in line. But there is a slight amount of misconvergence due to the variations of CRT and DY and also due to the terrestrial magnetism.

There are also 2 kinds of misconvergence of vertical direction on X axis and Y axis as same as horizontal direction.

Misconvergence of Vertical direction on X axis is corrected by CY (convergence yoke).

Figure 21 shows the CRT neck as seen from the rear side.

Red beam and Blue beam are moved to the vertical direction differentially by CY. As Green beam is at the center of the CRT neck, it is not affected by the magnetic field of CY due to the cancellation of the magnetic field at the center of the neck.

Misconvergence of vertical direction on Y axis is corrected by NTC (Neck Twist Coil).

A Neck Twist Coil is wound around the center of electrode G2 ~ G3 (See Figure 24) for the correction. Theoretically, as the RED and Blue beams have HI component (They are opposite direction) as seen in Figure 21, they move to the vertical direction due to the magnetic field generated by NTC.

However as magnetic field of the NTC is the parallel to the Green beam, Green beam is not affected.

Correction waveform generator is located in DB board, output amplifier of CY is in EB board and output amplifier of NTC is in DB board.

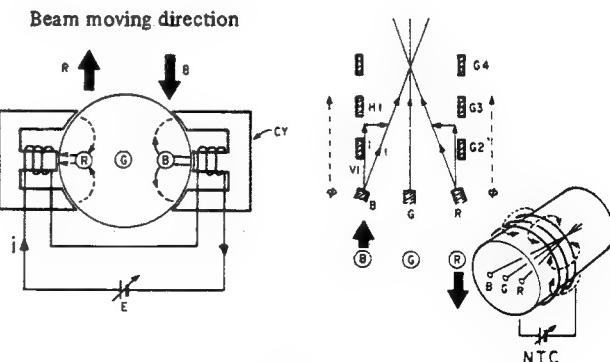
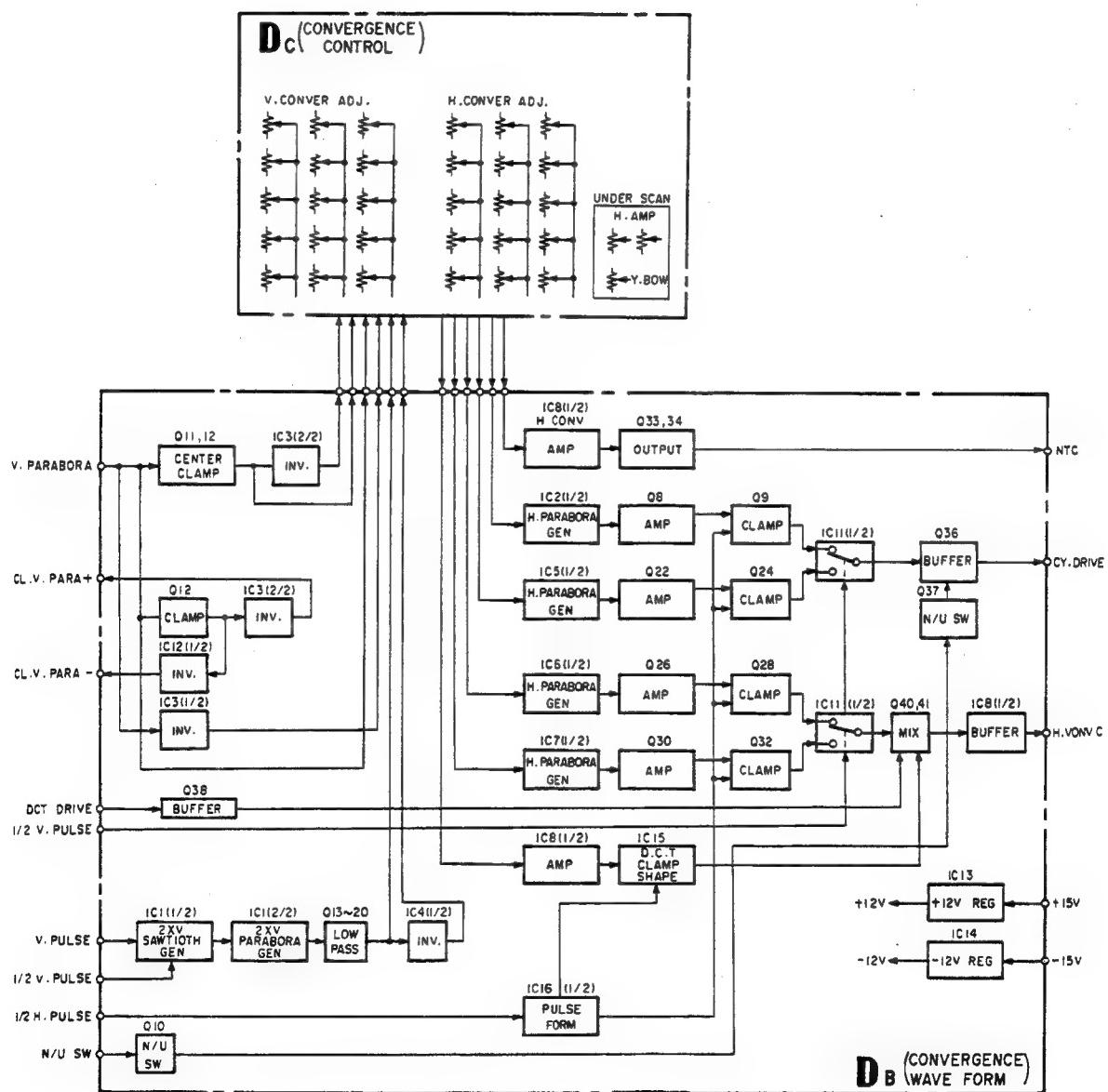


Figure 21

BLOCK DIAGRAM OF DB, DC BOARDS



3-12-5. Convergence Correction Waveform Generator (DB BOARD)

This monitor incorporates unique convergence circuit which can adjust convergence at 15 positions of the picture screen, each 15 potentiometers for horizontal and vertical convergence adjustments are located on the left side of the drawer corresponding to the picture screen.

3-12-6. Horizontal Convergence Correction Waveform Generator

A vertical rate parabola waveform is supplied to the DB board from the DB board and is inverted and switched to make correction waveform.

For the left side of the picture screen, the correction waveform is compounded by adjusting potentiometers RV16 ~ RV20 on the DC board. This waveform is converted to horizontal rate parabola waveform which level is proportional to the compounded waveform by H parabola generator (IC6, Q25). This is amplified by transistor Q26 and clamped at the center position of the horizontal period by transistor Q28 and IC6. See Figure 22.

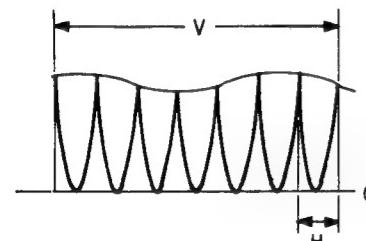


Figure 22

For the right side of the picture screen, the correction waveform is generated by adjusting potentiometers RV26 ~ RV30 on the DC board as same as the left side of the picture.

These correction waveforms (left and right side) are switched and mixed by analog switcher which activates at $1/2H$ period as seen in Figure 23.

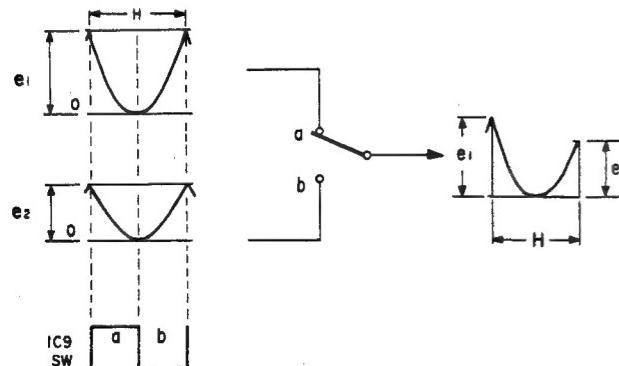


Figure 23

As a result, right side adjustments and left side adjustment can be performed independently of each other.

For the center of the picture screen, vertical parabola waveform is compounded to the correction waveform by adjusting potentiometers RV21 ~ RV25 on the DC board, and converted to horizontal pulse. This means amplitude of horizontal pulse is modulated by vertical parabola. (Q40, 41) See Figure 24.

This modulated pulse is mixed with horizontal parabola for left and right side correction. This mixed waveform is amplified and supplied to convergence plate in CRT via DCT. Thus horizontal convergence is corrected. See Figure 24.

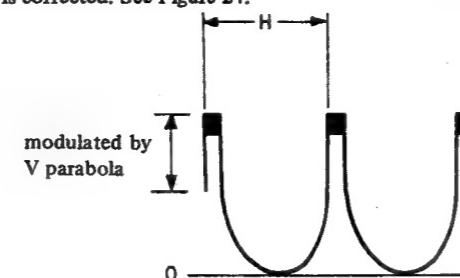


Figure 24

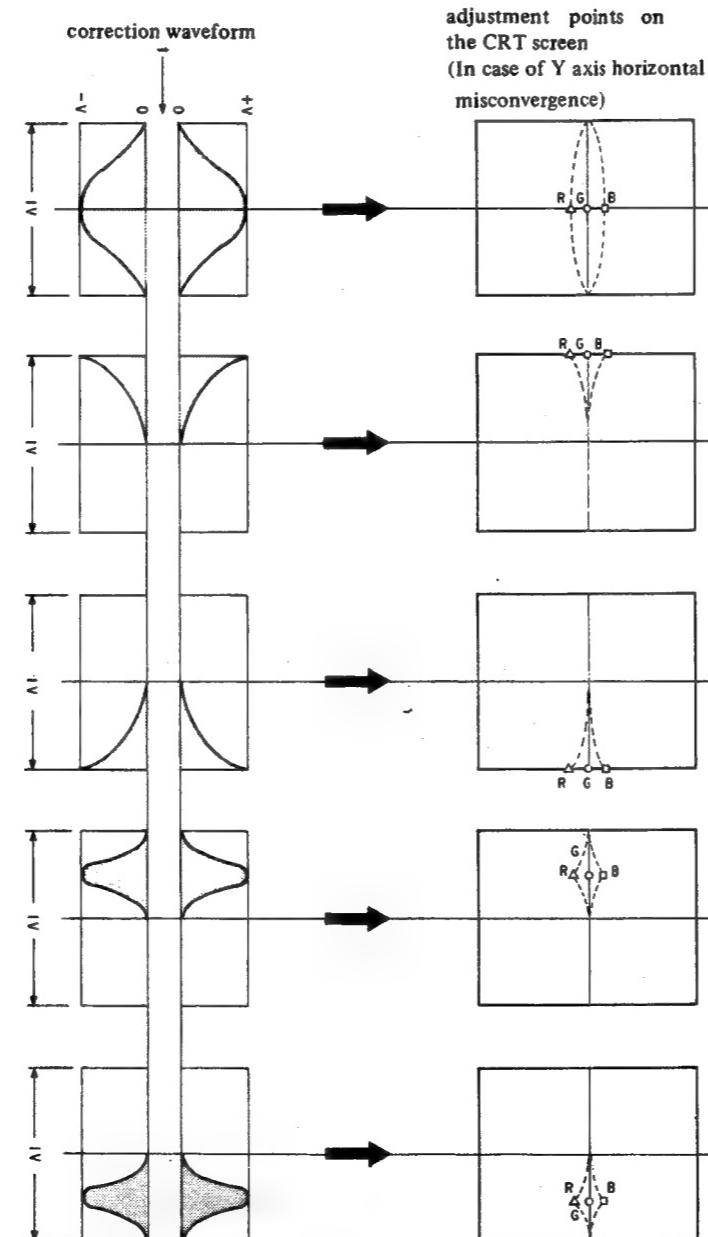


Figure 25

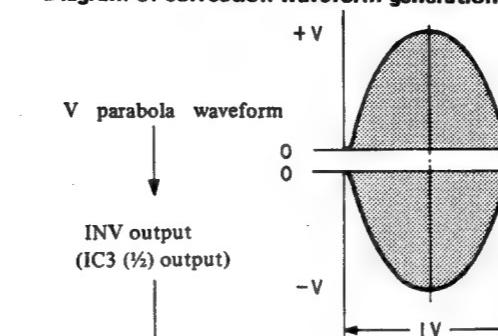
3-12-7. Vertical Convergence Correction Waveform Generator

For the left and right side of the picture, correction circuit for vertical convergence is same as horizontal correction circuit of left and right side of the picture. The correction waveform is amplified in EB board and supplied to CY.

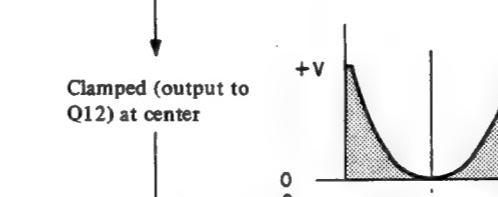
For the center of picture screen, correction waveform is fed to amplifier (IC8 (1/2), Q33 Q34) and supplied to NTC (Neck twist Coil).

This vertical convergence is performed.

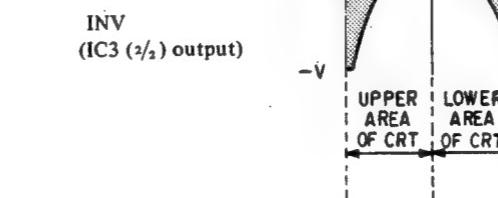
Diagram of correction waveform generation



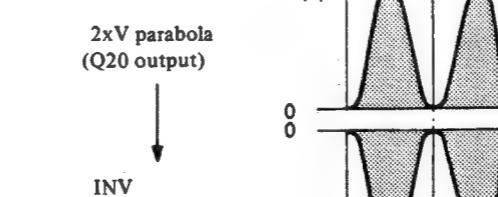
INV output (IC3 (1/2) output)



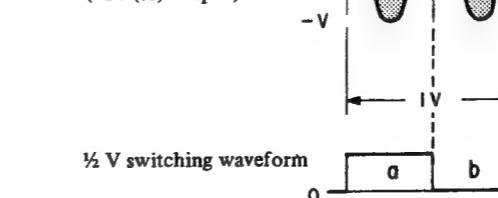
Clamped (output to Q12) at center



INV (IC3 (1/2) output)

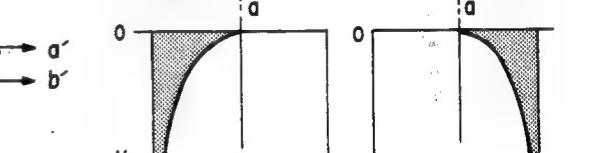
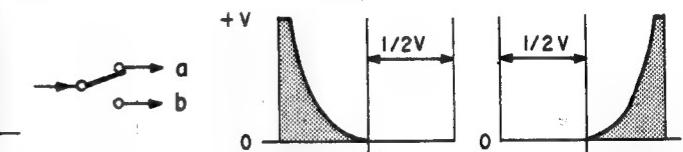


2xV parabola (Q20 output)



INV (IC4 (1/4) output)

Correction waveform for top and bottom of the CRT screen (Vertical rate)



Correction waveform for center position of CRT screen (Vertical rate)

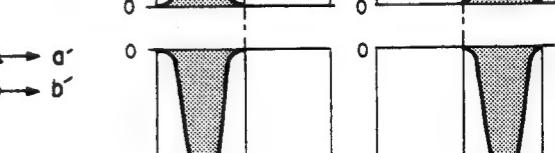
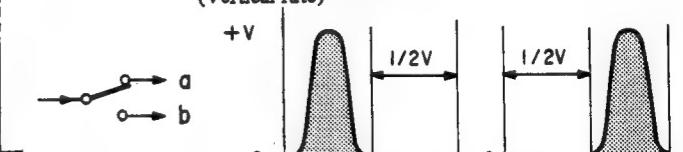


Figure 26

3-13. DEFLECTION CIRCUIT (DA BOARD)

3-13-1. H Delay and Horizontal AFC (Automatic Frequency Control) Circuit

In this model H delay function is performed by delaying H. AFC pulse in the horizontal AFC circuit. (See Figure 27)

H. AFC pulse which is fed from H.O.T. (Horizontal Output transformer) is wave shaped and is delayed about 20 μ s by IC1 (2/2).

This delayed pulse is integrated by inductor L1, and capacitor C14, thus sawtooth waveform is obtained and fed to terminal pin ④ of IC4. AFC detection is performed by IC4. Output of AFC detector is fed to control terminal of horizontal oscillator (H.OSC) via low pass filter composed of capacitor C12, C15 and resistor R10.

3 types of AFC mode are selected by changing low pass filter which determines AFC time constant.

AFC time constant circuit is composed of switch S1, resistor R13, R14, R15 and capacitor C17, C18.

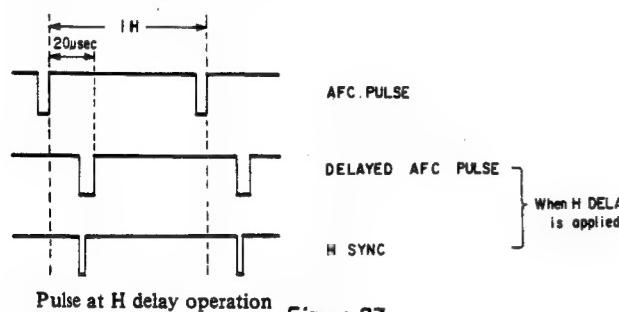


Figure 27

3-13-2. Horizontal Linearity Correction Circuit

In this model Horizontal Linearity correction is made by applying correction voltage to the Horizontal deflection circuit.

Basically, Linearity correction is made by modulating power source of horizontal output circuit with horizontal sawtooth voltage.

Also So-called "Inside pincushion" correction is performed by applying correction waveform to S correction capacitor.

This correction waveform is generated by balanced modulator (IC7) with vertical rate parabola waveform. See Figure 28.

Horizontal sawtooth waveform is generated by IC5 (1/2) for horizontal linearity correction. Horizontal rate parabola waveform is generated by integration of sawtooth by IC6 (1/2). This parabola waveform is performed balanced modulation by IC7 with vertical rate parabola waveform, horizontal sawtooth and parabola waveform are fed to horizontal linearity output amplifier in EA board. Correction of horizontal linearity correction and inside pincushion correction are performed.

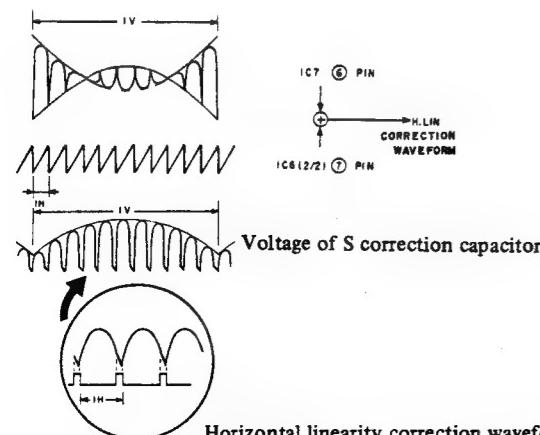


Figure 28

3-13-3. Horizontal Blanking Pulse Generator

Horizontal rate sawtooth waveform generated in H. Linearity circuit is fed to the comparator IC8 (1/2). In this circuit, 1/2H delayed pulse is obtained. This pulse is fed to integrator IC9 (1/2) and 1/2H delayed sawtooth waveform is obtained and this is fed to the comparator IC10 (1/2).

Thus the comparator generates horizontal pulse to make H. Blanking pulse which starts just before the starting edge of the retrace time. Also width of horizontal blanking pulse is determined by JK-FF IC1 (1/2).

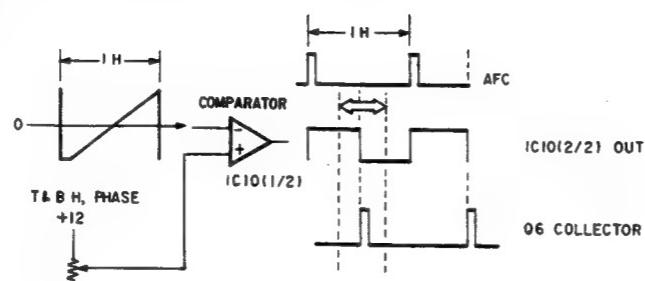


Figure 29

3-13-4. Top & Bottom Pincushion Circuit

Horizontal rate sawtooth waveform generated in H Linearity circuit is also fed IC10. IC10 generates advanced H pulse for the phase correction because vertical Deflection Yoke works as an integrator at horizontal rate, and deflection current for Top & Bottom pincushion correction is delayed about 1/2H for this reason. See Figure 29.

Advanced H pulse is fed to IC11 (1/2) and advanced horizontal sawtooth waveform is generated. It is integrated by IC11 (2/2) and horizontal rate parabola waveform is obtained.

Modulated butterfly waveform for Top & Bottom pincushion correction is obtained by Balanced modulator IC12. In this balanced modulator, horizontal rate parabola waveform is used as a carrier and vertical rate sawtooth waveform is modulated by this carrier. See Figure 30.

This correction waveform is fed to vertical deflection output amplifier. Balance adjustment of vertical linearity correction can be performed by IC22 (1/2) and vertical centering can be adjusted by IC22 (2/2).

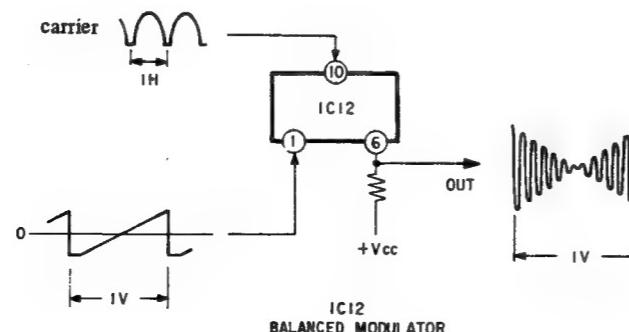


Figure 30

3-13-5. Automatic 50/60Hz Field Selection Circuit

This model has an automatic vertical field frequency selection circuit so that color systems with different frequencies such as NTSC or PAL and SECAM can be received. IC18 is automatic field frequency detecting device and its output switches (IC13) time constant of integrator in vertical deflection circuit.

3-13-6. Scan Mode Selection Circuit

There are 3 modes of scanning in this model: NORMAL SCAN/ UNDER SCAN/SET UP SCAN.

There are level adjustments for H1 width, V, height side pincushion and top & bottom pincushion.

Levels of correction waveforms are switched so that these adjustments are made independently for each scanning mode. IC14, IC15 and IC16 activates for this purpose.

3-13-7. Vertical Deflection, Side Pincushion Correction

IC19 (1/2) generates vertical rate sawtooth waveform for vertical deflection. V sawtooth waveform is generated by the integrator IC9 (1/2) which is reset by V sync.

Also vertical rate parabola is generated by integrating V. sawtooth waveform by IC9 (2/2).

This V parabola is used for side pincushion correction, and also V. parabola is converted to sine waveform by IC20 (1/2) and is mixed with V parabola waveform. This mixed waveform is used for side pincushion correction and fed to side pincushion output amplifier in EA board.

Vertical drive voltage for vertical deflection is generated by mixing vertical rate sawtooth waveform generated by IC19 (1/2) and sine waveform generated by IC22 (1/2).

This drive waveform is fed to vertical deflection output amplifier. Balance adjustment of vertical linearity correction can be performed by IC22 (1/2) and vertical centering can be adjusted by IC22 (2/2).

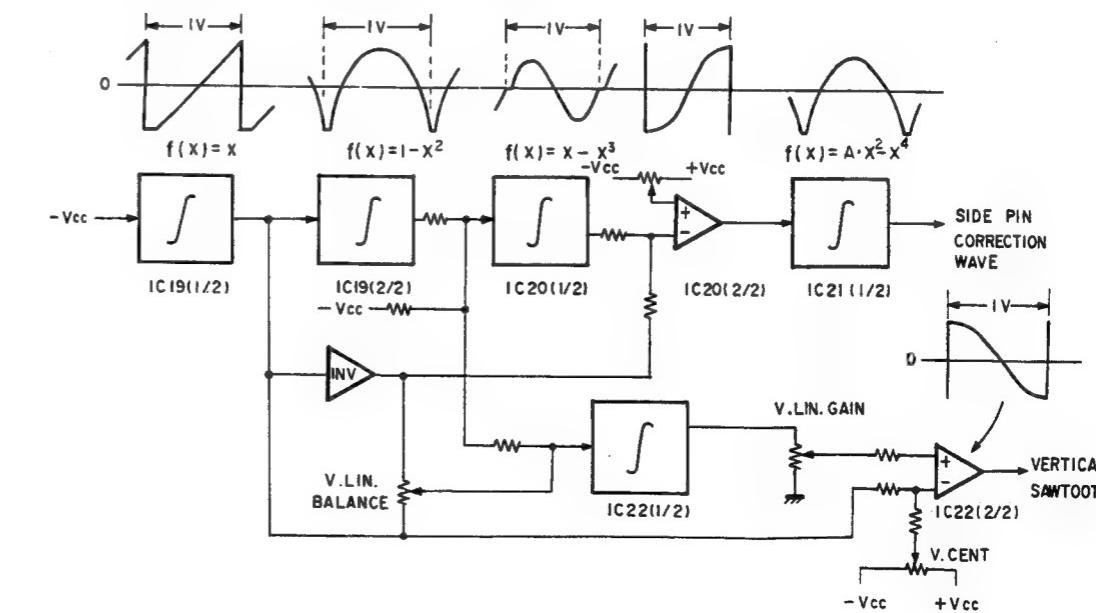


Figure 31

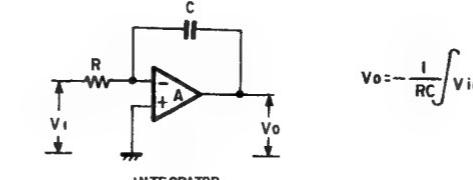
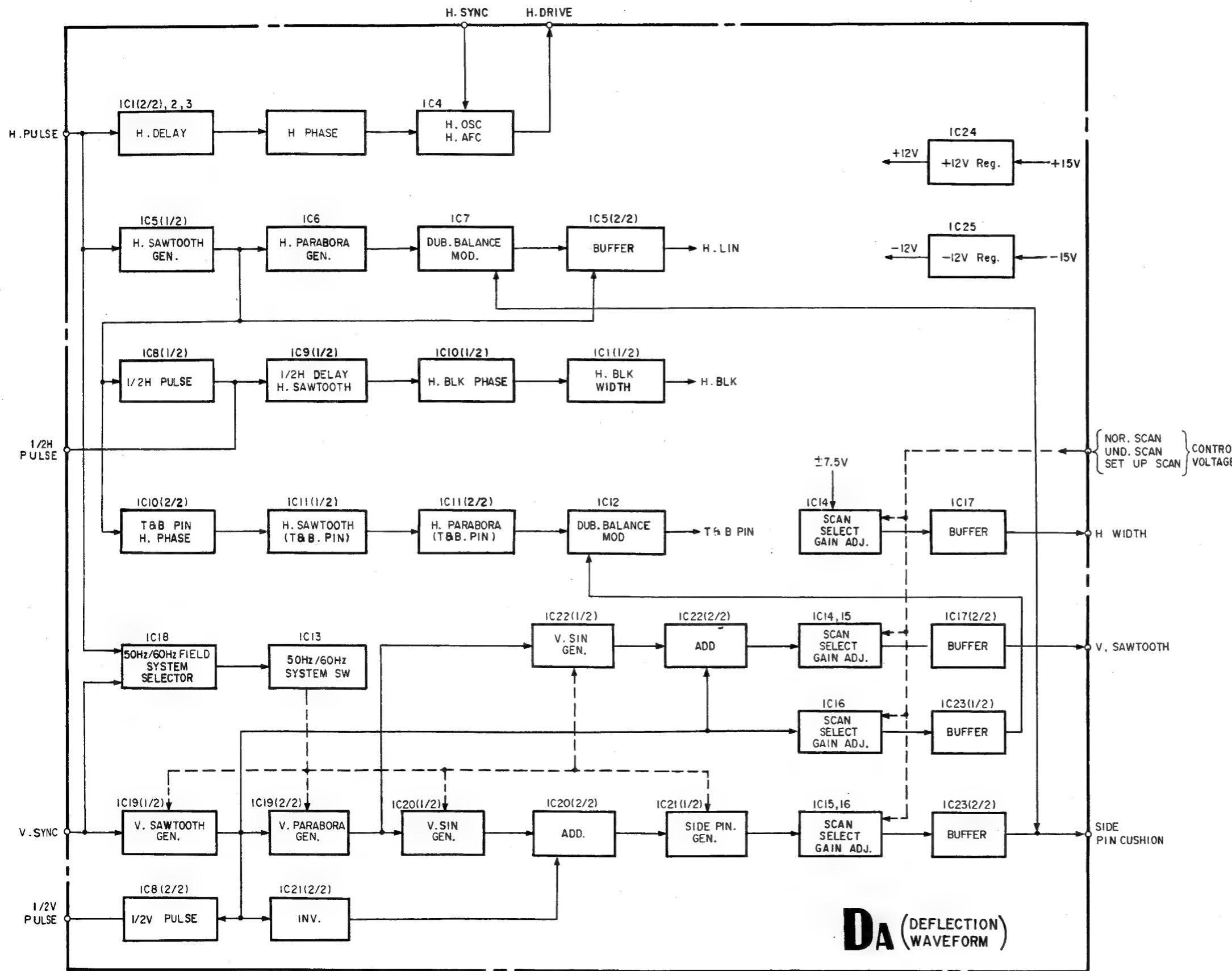


Figure 32

BLOCK DIAGRAM OF DA BOARD



3-14. HORIZONTAL OUTPUT (EA BOARD)

3-14-1. Horizontal Deflection Circuit

Horizontal drive pulse for Horizontal deflection output is made at DA board and is fed to T4 (Horizontal Drive Transformer) via Q13 (H. driver). T4 is driven by Q13 and output pulse of T4 drives Q14 (Horizontal Output Transistor).

To obtain high efficiency in this model, DC-DC converter is used for side pincushion correction, Horizontal Width adjustment and +B Line voltage conversion to the horizontal deflection circuit.

This converted Line voltage is fed to horizontal deflection output circuit via H.O.T (Horizontal Output Transformer). Side pincushion correction and H. width adjustment are made by this DC-DC converter. IC1 contains error amplifier and PWM (Pulse Width Modulator) circuit for DC-DC converter. Side pincushion correction waveform and DC voltage for H. Width adjustment are made in DA board and supplied to error amplifier to control DC-DC converter.

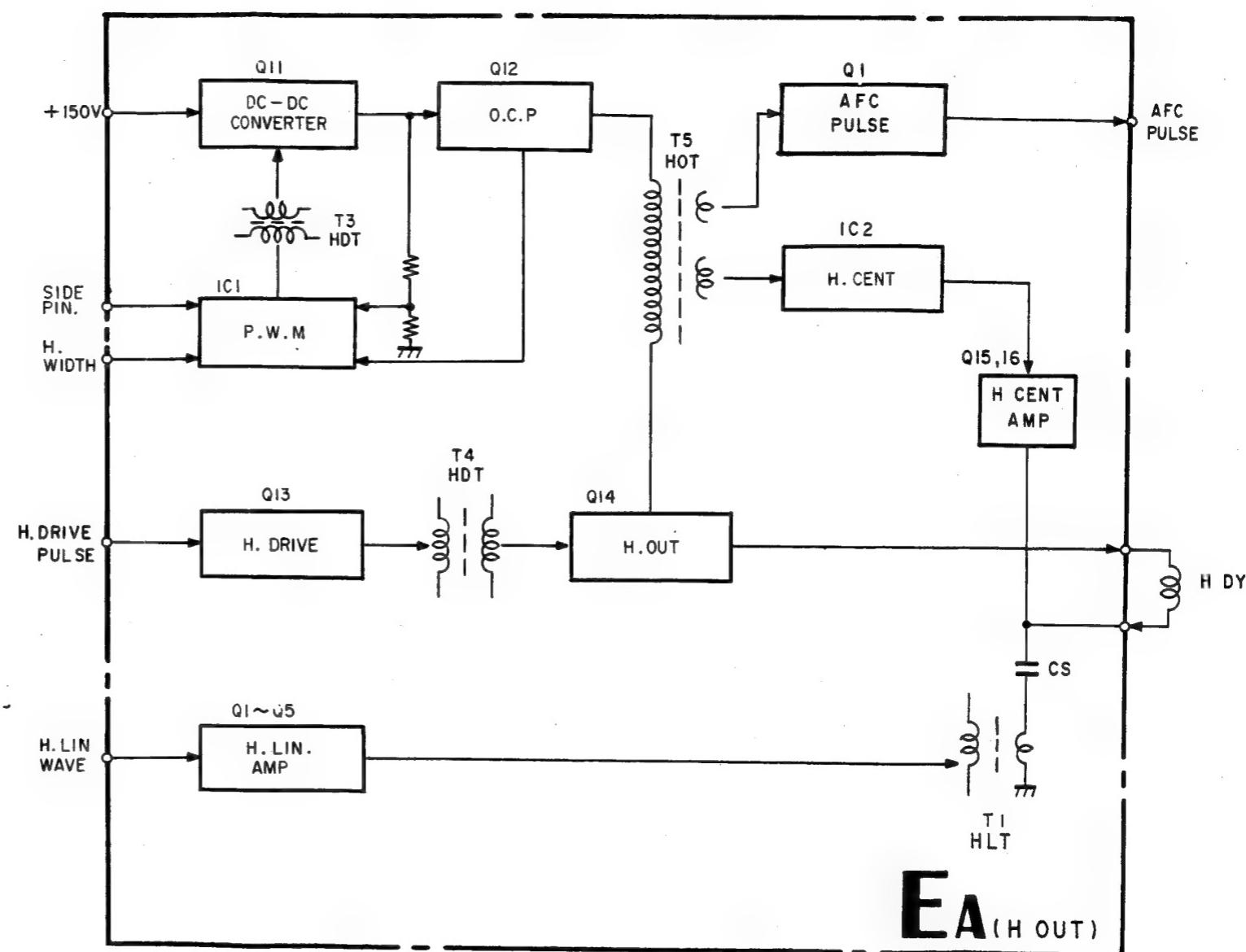
3-14-2. Horizontal Centering Circuit

± low voltages power supply for H centering are made in this circuit from output of secondary windings of T5 (Horizontal Output Transformer). These low voltages are converted to current source for mixing DC current on the deflection current. In this circuit Bow shaped geometry distortion due to the H centering adjustment is adjusted by providing vertical rate parabola waveform current on the H centering current.

3-14-3. Horizontal Linearity Correction Circuit

Waveform for Horizontal Linearity correction made in DA board is fed to SEPP amplifier (Single Ended Push Pull) which are composed of Q1 - Q5 transistors. Output of this amplifier is fed to H deflection circuit (Deflection Yoke) and make correction of H linearity by T1 (Horizontal Linearity Transformer).

BLOCK DIAGRAM OF EA BOARD



3-15. HIGH VOLTAGE REGULATOR (PA BOARD)

This high voltage regulator uses also DC-DC converter so as to reduce power consumption.

The theory of operation of this circuit is as follows.

3-15-1. Detection of High Voltage

High Voltage applied to the CRT anode is converted to the low voltage by DCT block (Dynamic Convergence Transformer). This low voltage is fed to buffer amplifier IC4(2/2) and compared with external reference voltage in IC1. The DCT contains resistor network and transformer for convergence adjustment. This resistor network works as a voltage divider.

3-15-2. PWM Modulator

IC1 works as error amplifier and PWM modulator comparing voltage between high voltage and the reference voltage is amplified and modulated so as to drive Q102 output transistor. Output signal from IC1, which is modulated in PWM, is fed to Q102 via drive transformer. +B line supplied to FBT (Fly Back Transformer) circuit is controlled by switching Q102 output transistor on/off.

3-15-3. Output Circuit

When high voltage drops down, output voltage of DCT also drops as above mentioned. At this time PWM circuit is designed so that the ON period of Q102 output transistor should be longer than high voltage drops down. +B line, switched ON/OFF by Q102, is supplied to converter circuit which drives FBT via LOT (Line Output Transformer).

Amount of collector current of Q103, which drives FBT, depends upon ON period of Q102 because PWM modulator is triggered by H. pulse. Therefore when ON period of Q102 is longer, collector current of Q103 increases and energy stored in capacitor C124 increases, causing potential of C124 to rise. (Refer to Figure 37) When output transistor Q103 goes off, flyback pulse is generated by resonance between capacitor C108 and inductance obtained by parallel connection of FBT and LOT. This flyback pulse is transferred to the secondary circuit of FBT. Therefore high voltage is generated.

3-15-4. High Voltage Regulator

Q102, Q107, IC4 (2/2), IC1 (IC for controlling P.W.M) and HVR (D C T block) form a regulator.

Since the detection pin voltage of HVR is decreased when the high voltage is lowered due to increase of the CRT current, it makes the switch ON time length of Q102 longer. As a result, the collector peak current of Q103 is increased and accordingly, the energy accumulated in C124, which is fed to it through the FBT, is increased. In this way, it raises the potential of C124 and regulates the high voltage.

Q103, C108, C124 and the FBT form a high voltage converter circuit.

The pulse of on-duty 60% is generated with the H pulse by a time constant circuit which consists of Q109, Q110, Q111, Q112, R143, C128, R144, C127 and D111. When Q103 is switched OFF due to the on-duty 60% pulse, flyback pulse is generated at the collector of Q103 by resonating of the LOT, FBT and C108.

3-15-5. High Voltage Protection Circuit

High voltage protector activates to shut down high voltage, when high voltage exceeds the predetermined value so as to prevent X-ray radiation.

The high voltage converted to the low voltage is detected at the terminal of DCT block. This detected voltage is fed to the + input terminal of comparator IC2(2/2) via low pass filter, which is composed of resistor R245 and capacitor C216. When this voltage exceeds the reference voltage, the voltage of - input terminal of comparator IC2(2/2), output level of this comparator goes high level and turns SCR (D206) gate on to shut down the drive pulse of flyback generator. Thus high voltage stops. The reference voltage of the comparator IC2(2/2) is made by mixing stabilized voltage (zener diode D215)

3-15-6. Protection Circuit for Excess Beam Current

Beam current which flows in secondary windings of FBT is measured at the terminal 9 of FBT. This beam current is converted to the voltage by resistor R1 (R4) and R2 (R3), R5 (R6) located in PB board in series connection of secondary windings of FBT. This converted voltage is fed to -input of comparator IC2(1/2) or IC3 (1/2). As beam current increases, -input voltage goes down. When beam current increases until -input voltage goes below the reference voltage (+ input terminal voltage) output voltage of comparator goes up high level and SCR (D205 or D206) turns ON. Thus drive pulse of flyback generator is shut down. Therefore high voltage stops.

3-15-7. CRT Protection Circuit

When vertical deflection stops, this circuit activates to shut down high voltage to prevent damage of CRT.

When vertical deflection stops, there is no vertical output pulse generated at vertical output amplifier. So Q201 transistor is cut off and output of comparator IC4(1/2) goes up high level. Q202 transistor turns on and flyback generator stops.

3-15-8. G2 Voltage Regulator

Flyback pulse generated at Q103 (H output transistor) is rectified to obtain DC voltage. This rectified DC voltage is regulated by Q104, IC3(1/2) and Q106 transistor. Regulated 410V DC voltage is obtained. Q105 transistor which works in accordance with G2 control circuit in BI board supplied proper voltage to G2 of CRT.

3-15-9. Power Supply for Heater

Power supply to heater is generated from secondary windings of LOT. Heater voltage is adjusted by resistor R107.

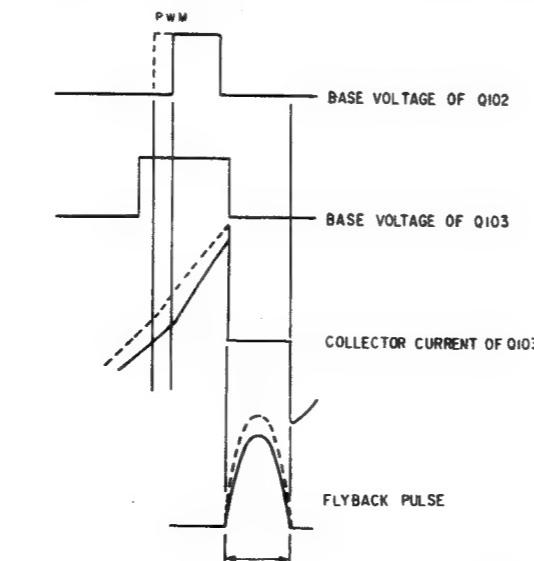


Figure 32

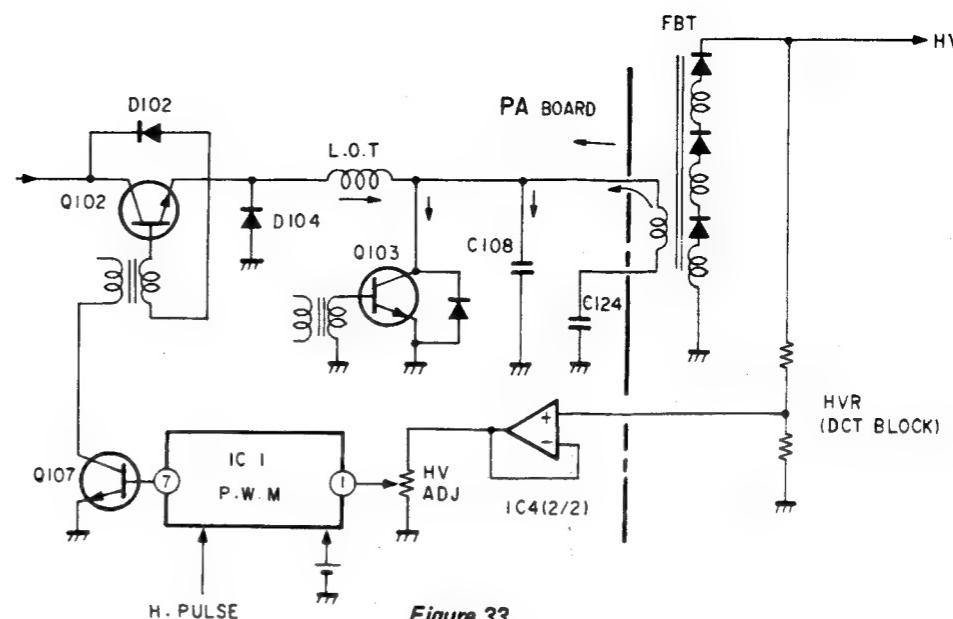
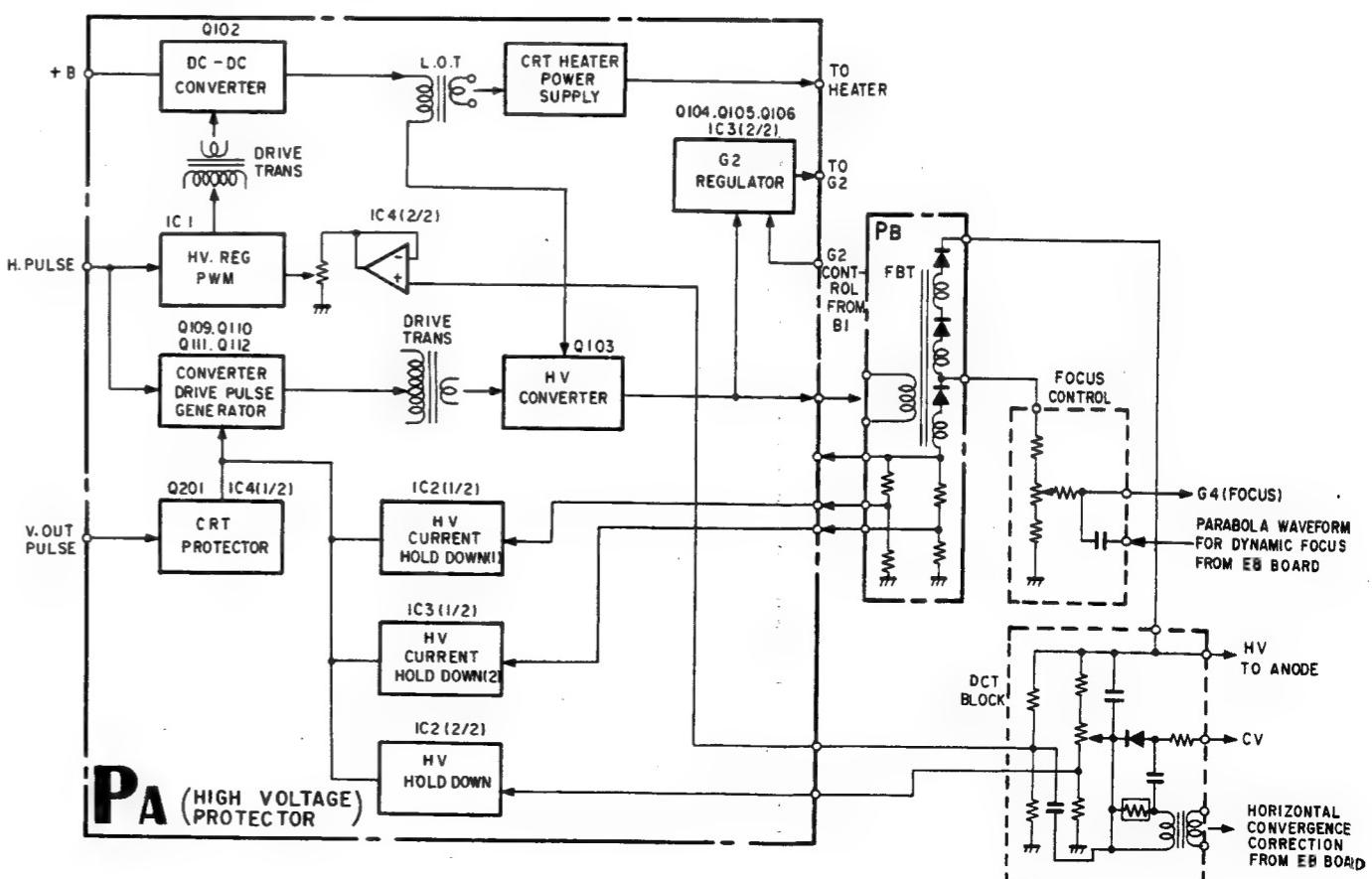


Figure 33

BLOCK DIAGRAM OF PA BOARD

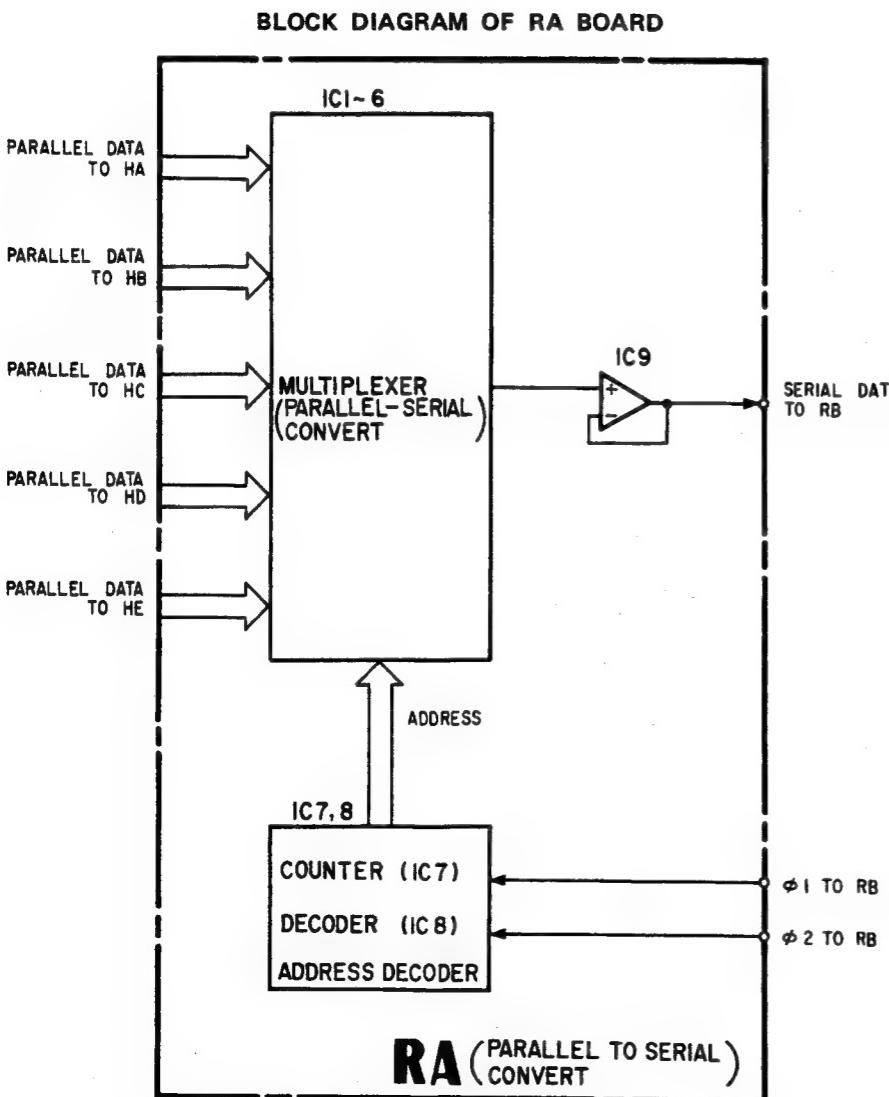


3-36

3-16. RA BOARD

Parallel-Serial Conversion

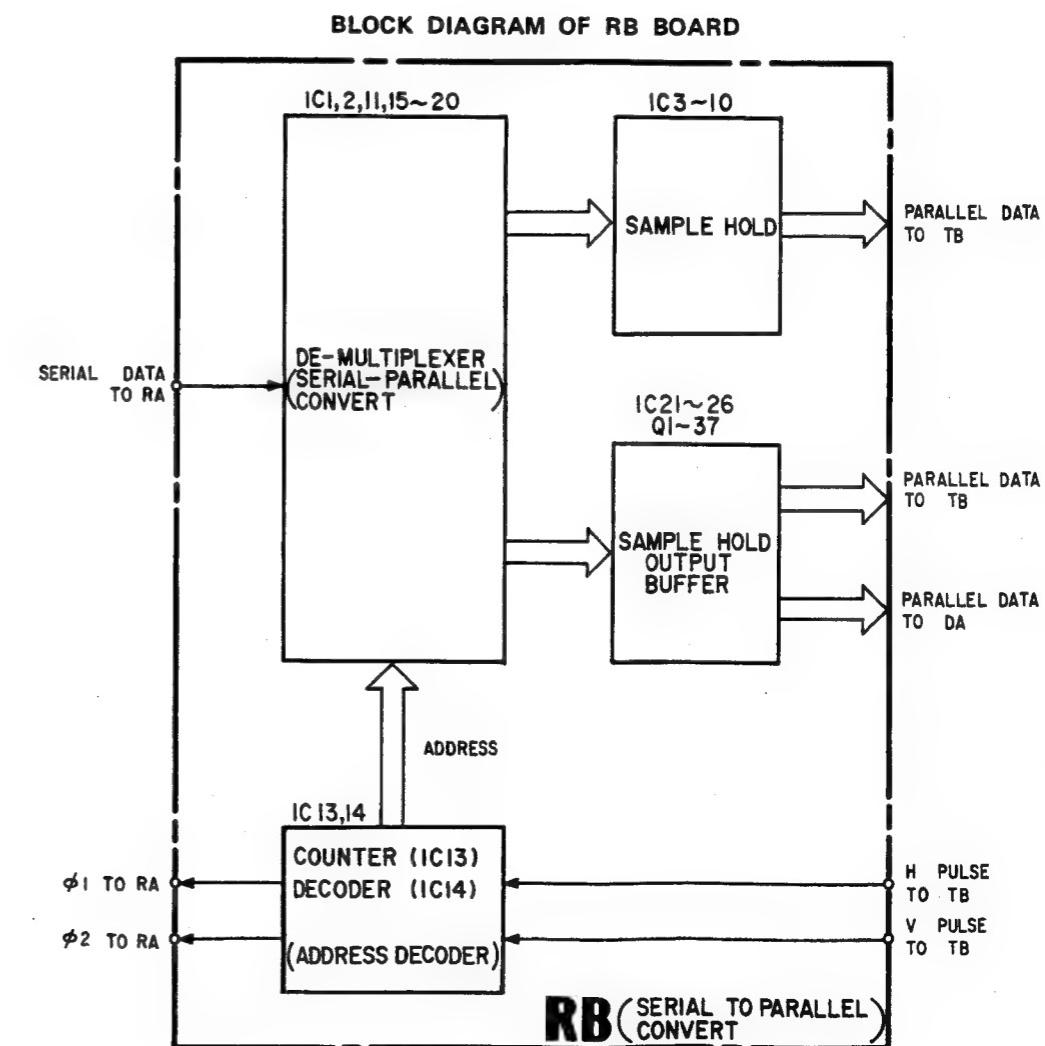
In this board, parallel data of selector switches and manual controls, etc. are time divided by H cycle and converted to serial data. This circuit is composed of counter (IC7), decoder (IC8) and multiplexer (IC1 to IC6). The counter counts ϕ_1 (normally H pulse), and is reset by ϕ_2 (normally V pulse). The decoder decodes output of the counter, and gives address to multiplexer (IC1 to IC6). The multiplexer (IC1 to IC6) outputs in sequence from Y_0 correspondingly to addresses. In this way, parallel data is converted to serial data with H-cycle dividing.



3-17. RB BOARD

Serial-Parallel Conversion

In this board, serial data which are output from the RA board are converted to parallel data, and they are supplied to the control circuit. This circuit is composed of counter (IC13), decoder (IC14), demultiplexer (IC15 to IC20), sample hold and output buffer (IC3 to IC10, IC21 to IC26, Q1 to Q37). The counter counts ϕ_1 (normally H pulse), and is reset by ϕ_2 (normally V pulse). The decoder decodes output of the counter, and gives address to de-multiplexer (IC15 to IC20). The de-multiplexer (IC15 to IC20) outputs in sequence from Y_0 correspondingly to addresses. The output is sample and hold, and converted to parallel data, passed through output buffer and it controls respective control circuits.

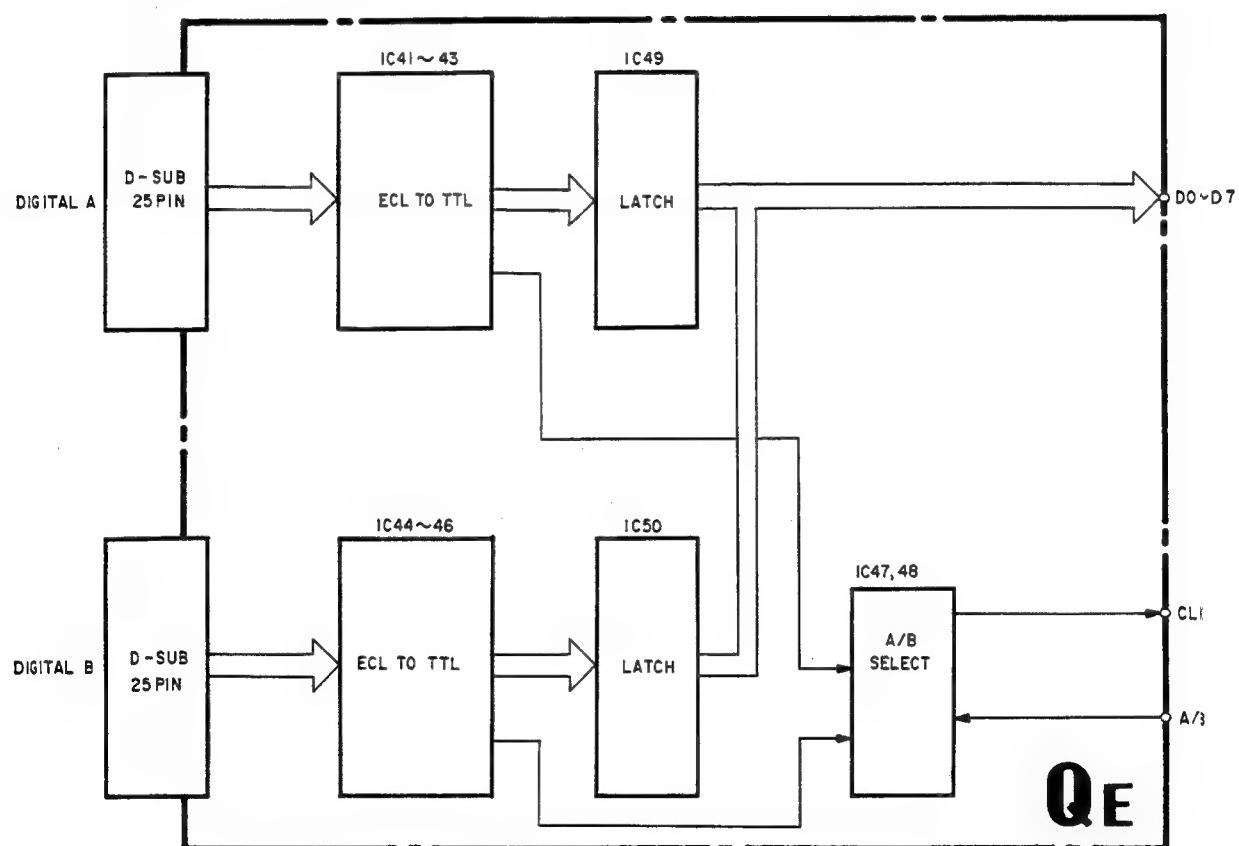


3-18. QE BOARD (BVM-2010PD/PMD ONLY)

Conversion of ECC to TTL

The signal input from DIGITAL input connector is converted from ECL logic level to TTL logic level with IC41 to IC43 (IC44 to IC46). LATCH IC49 (IC50) selects input A and B by means of selection of OUTPUT ENABLE CLOCK selects A and B with IC48.

BLOCK DIAGRAM OF QE BOARD





3-19. QD BOARD (BVM-2010PD/PMD ONLY)

4:2:2 decode, D/A conversion (Hereinafter, similar to B-Y, Y)

3-19-1. 4:2:2 Decode

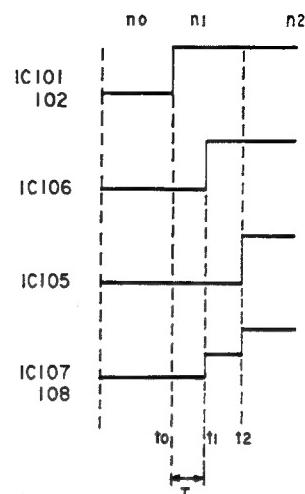
The signal input from the QE board is decoded into R-Y, B-Y and Y signals with IC8 and IC9.

3-19-2. Blanking

IC101 and IC102 are blanking circuits. When the horizontal and vertical blanking period is 0, blanking is selected to 80 (HEX) signal (IC301 and IC302 select the black level to 10 (HEX).)

3-19-3. Digital Filter

IC105 to IC108 comprise a simple digital filter. It is explained in terms of analog, it becomes as shown in Fig. 38. The output data of IC101 and IC102 vary with clock of 2T such as n0, n1 and n2. IC105 and IC106 are delay circuits of 2T and T, respectively. IC107 and IC108 are adding circuits. The outputs of IC107 and IC108 varies n0, (n0 + n1)/2, n1 at the cycle of T. As a result, a data of (n0 + n1)/2 is interpolated between n0 and n1.



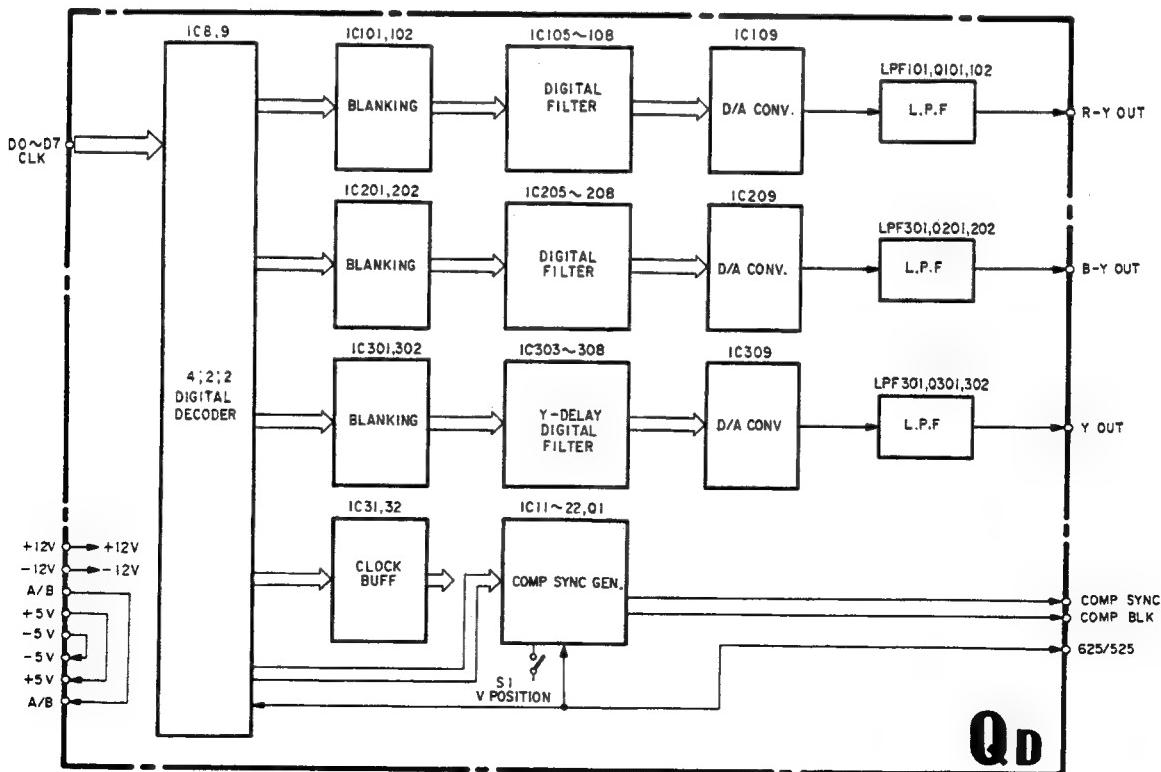
3-19-4. D/A Conversion

IC109 is an IC for D/A conversion and it converts the input digital signal into analog signal and it is output after being passed through Low Pass Filter (LPF101).

3-19-5. COMP SYNC Generator

IC11 to IC22 generate COMPOSITE SYNC signal from output clock, H signal and frame signal of IC8.

BLOCK DIAGRAM OF QD BOARD



3-20. BR BOARD (BVM-2010PD/PMD ONLY)

3-20-1. R-Y AMP and DELAY circuit (Similar to B-Y)

The level and delay of R-Y signal output from the QD board are adjusted to those of Y signal with Q101 and IC101.

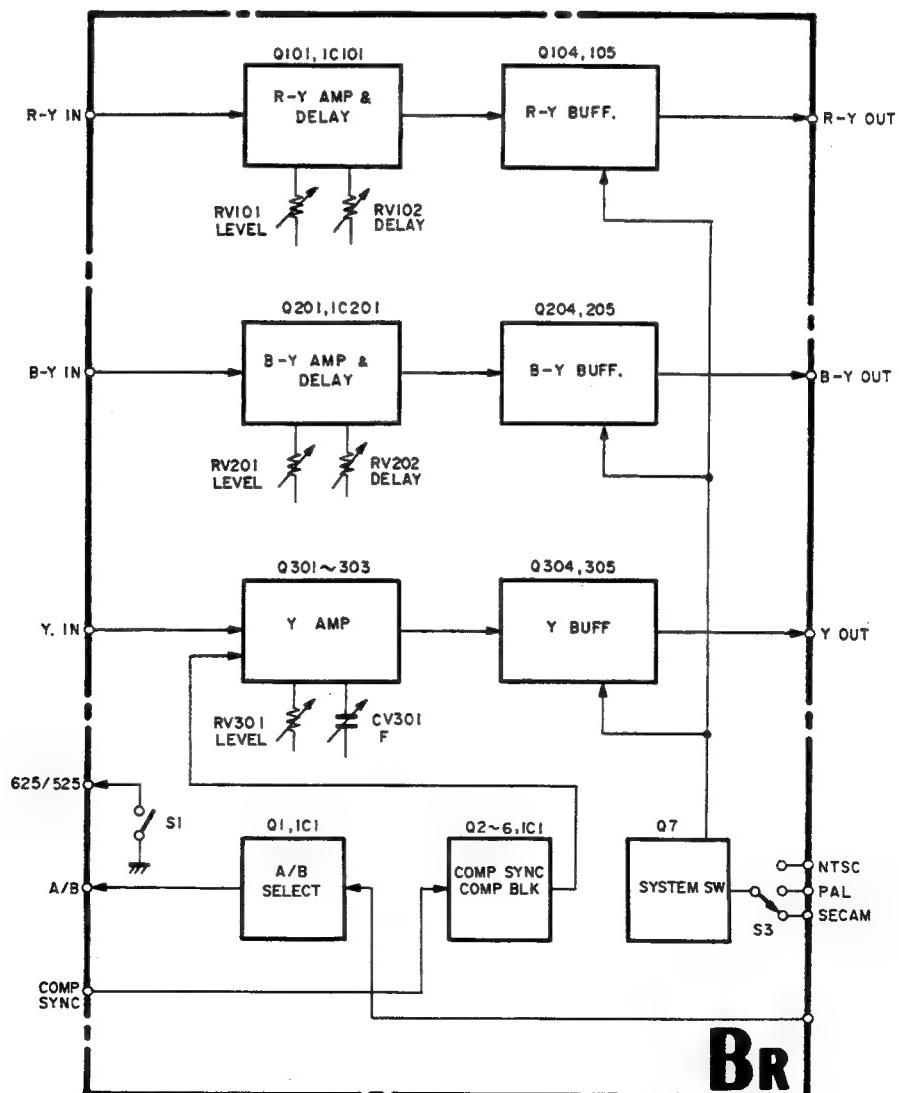
3-20-2. Y AMP

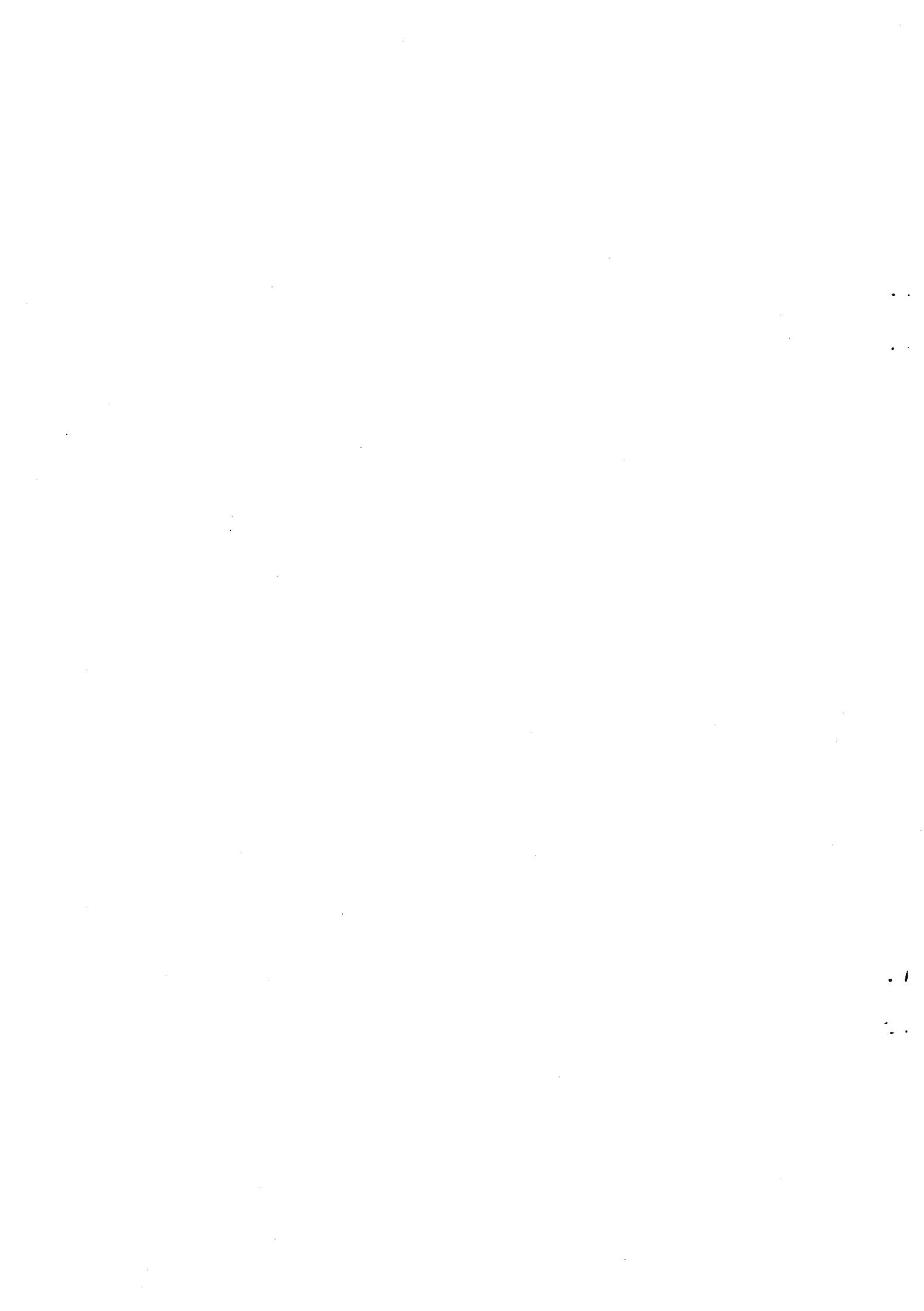
The Y signal output from the QD board is added COMP SYNC and amplified with Q301 to Q303.

3-20-3. R-Y BUFF (Similar to B-Y and Y)

Q104 and Q105 output R-Y signal when DIGITAL is selected

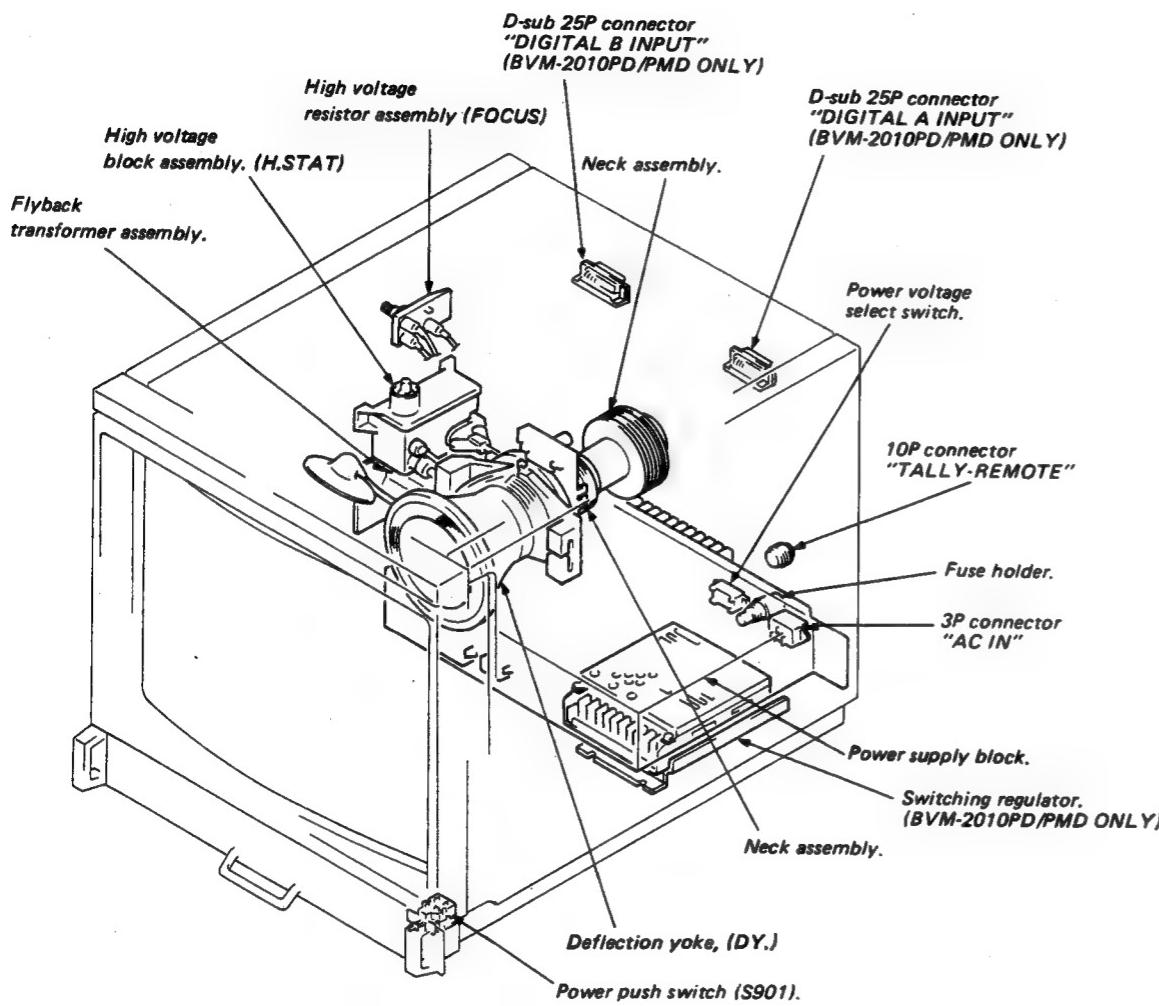
BLOCK DIAGRAM OF BR BOARD





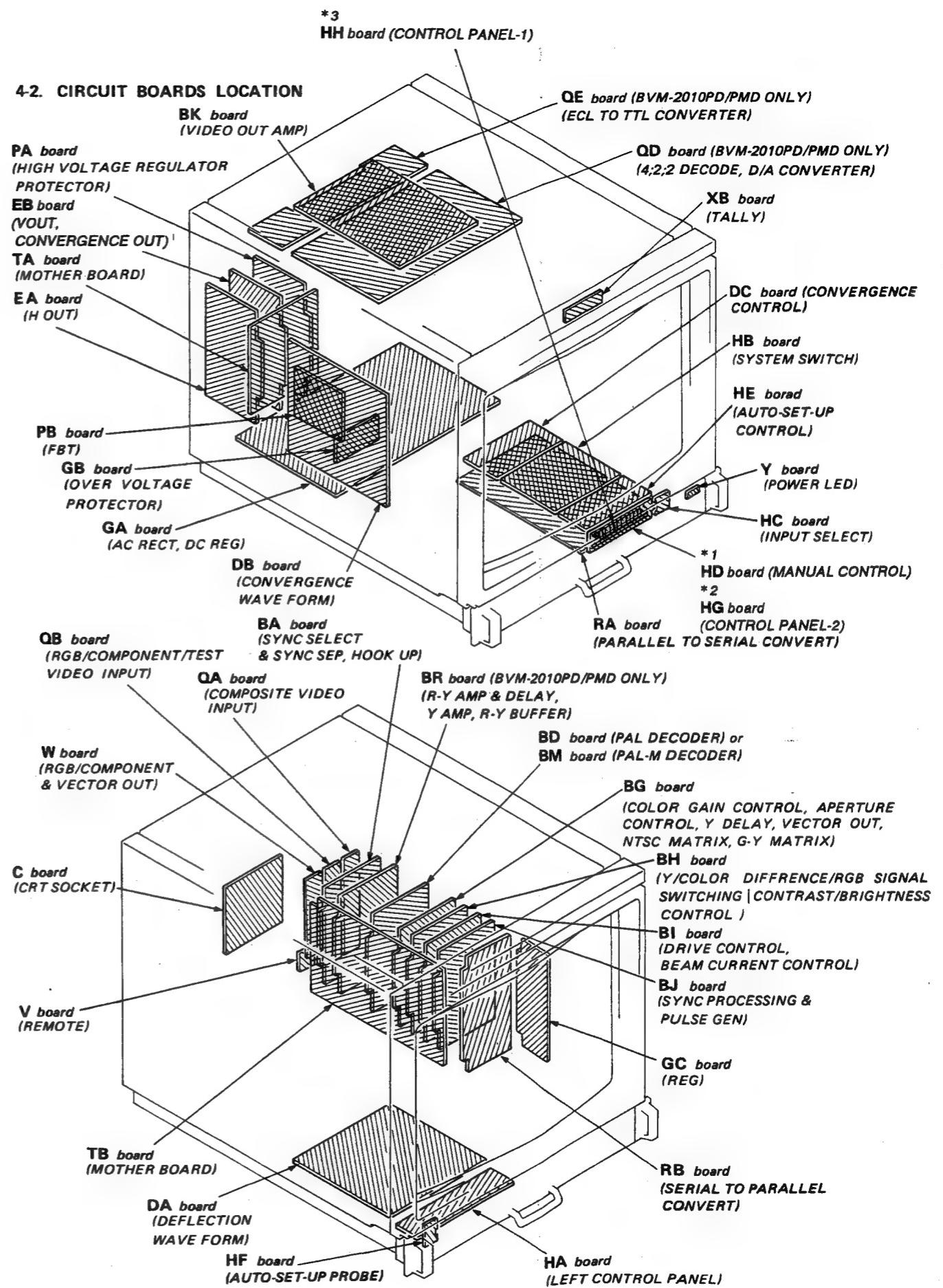
SECTION 4 ADJUSTMENTS

4-1. INTERNAL VIEW



*1 HD board
BVM-2010P ONLY Serial No. up to 2,001,080
BVM-2010PD ONLY Serial No. up to 2,000,041
BVM-2010PM ONLY Serial No. up to 2,000,003

*2, 3 HG, HH board
BVM-2010P ONLY Serial No. 2,001,081 and higher, BVM-2010PM ONLY Serial No. 2,000,004 and higher
BVM-2010PD ONLY Serial No. 2,000,042 and higher, BVM-2010PMD ONLY Serial No. 2,000,001 and higher

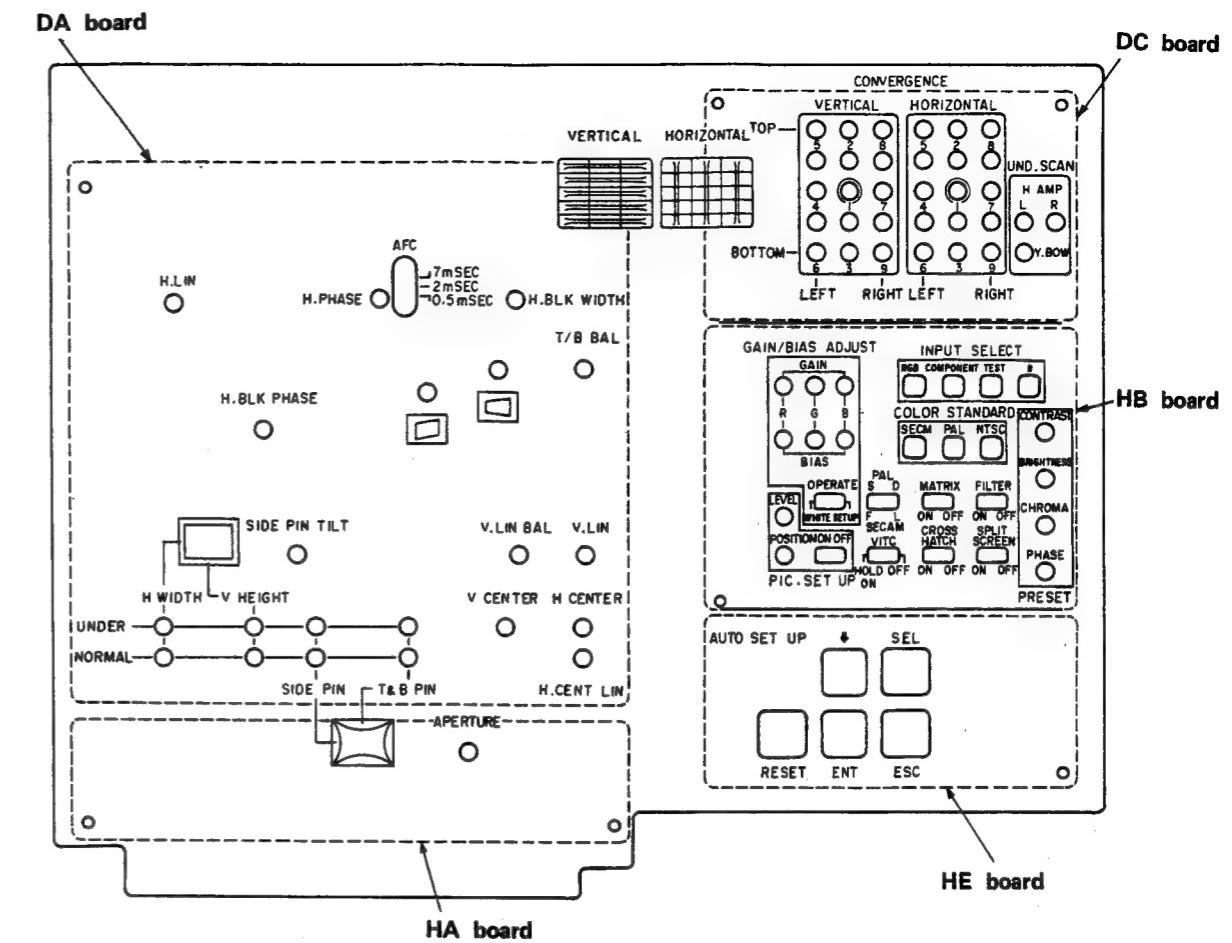


4-3. QUICK REFERENCE

(BR, QD, QE boards are BVM-2010PD/PMD only).

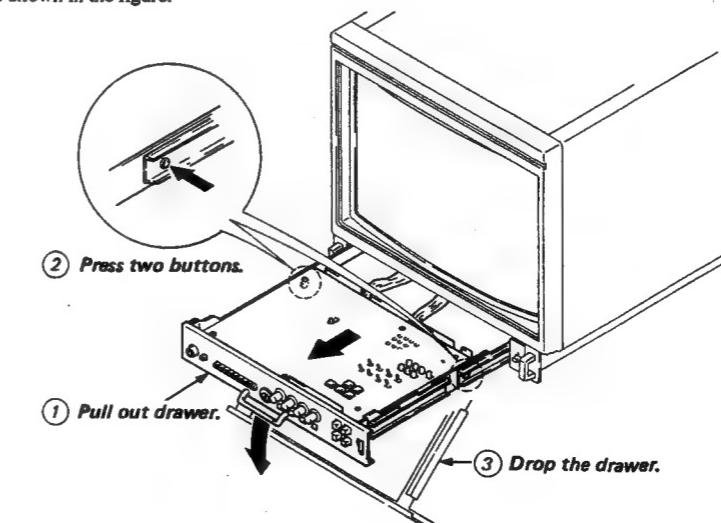
BOARD SECTION	BA	BD	BM	BG	BH	BI	BJ	BK	DA	DB	EA	DC	BR
CIRCUIT DESCRIPTION	3-1	3-17	3-19	3-3	3-5	3-7 3-15	3-9	3-13 3-15	3-29	3-25 3-27	3-33	3-25	3-41
ADJUSTMENTS	4-21 4-25	4-31		4-21 4-27 4-49	4-21	-	4-19 4-30 4-46	4-47	4-50	-	-	-	4-57
BLOCK DIAGRAM	3-2	3-18	3-20	3-4	3-6	3-8	3-10	3-14	3-31	3-26	3-34	3-26	3-41
MOUNTING DIAGRAM	5-15	5-23		5-25	5-33	5-35	5-43	5-45	5-53	5-55	5-66	6-63	5-109
SCHEMATIC DIAGRAM	5-17	5-21		5-27	5-31	5-37	5-41	5-47	5-51	5-57	5-69	5-61	5-107
ELECTRICAL PARTS LIST	7-1	7-3		7-7	7-10	7-11	7-14	7-16	7-20	7-24	7-27	7-26	7-18
BOARD SECTION	EB	GA	GB	C	PA	PB	HA	HB	HC	HD	XB	RA	QD
CIRCUIT DESCRIPTION	3-21	3-23	3-23	-	3-35	-	-	-	-	-	-	3-37	3-40
ADJUSTMENTS	-	-	-	-	-	-	-	4-18 4-21	-	-	-	-	-
BLOCK DIAGRAM	3-22	3-24	3-24	-	3-36	-	-	-	-	-	-	3-37	3-40
MOUNTING DIAGRAM	5-68	5-73	5-72	5-78	5-79	5-78	5-86	5-86	5-85	5-85	5-85	5-97	5-113
SCHEMATIC DIAGRAM	5-69	5-75	5-76	5-82	5-81	5-82	5-88	5-87	5-87	5-88	5-88	5-99	5-111
ELECTRICAL PARTS LIST	7-28	7-29	7-32	7-20	7-34	7-36	7-32	7-33	7-33	7-33	7-43	7-38	7-37
BOARD SECTION	Y	GC	QA	V	W	TA	TB	Z	HE	QB	HF	RB	QE
CIRCUIT DESCRIPTION	-	-	3-1	-	-	-	-	-	-	3-1	-	3-38	3-39
ADJUSTMENTS	-	-	-	-	-	-	-	-	-	-	-	-	-
BLOCK DIAGRAM	-	-	3-2	-	-	-	-	-	-	3-2	-	3-38	3-39
MOUNTING DIAGRAM	5-85	5-93	5-93	5-84	5-94	5-7	5-11	5-119	5-89	5-93	5-89	5-103	5-117
SCHEMATIC DIAGRAM	5-88	5-95	5-95	5-98	5-95	5-9	5-13	-	5-92	5-96	5-91	5-105	5-116
ELECTRICAL PARTS LIST	7-43	7-32	7-36	7-42	7-43	7-42	7-42	-	7-33	7-38	7-34	7-40	7-38

4-4. SUB CONTROL PANEL LOCATION



ADJUSTING METHOD OF DRAWER BLOCK

* Pull out sub-control panel and press two stopper buttons to drop it 60° as shown in the figure.



4-5. SETUP ADJUSTMENT IN CASE OF PICTURE TUBE REPLACEMENT

When the picture tube has been replaced, make the following adjustments. Convergence and white balance are normally adjusted by the potentiometers on the sub control panel.

(Refer to pages 4-6, 4-7, 4-8 and 4-9)

[Jigs Tools and Measurement Equipment Required]

1. SIGNAL GENERATOR (TEKTRONIX 1411 and 1412 Series)
2. COLOR ANALYZER
3. LUMINANCE METER

[Landing adjustment]

1. Connect signal generator and receive a white signal.
2. Set BRIGHTNESS and CONTRAST VRs to the preset position (□).
3. Face the CRT screen toward East (or West) and press the DEGAUSS switch.
4. Set the purity knob to mechanical center as shown in Fig. 1-1.

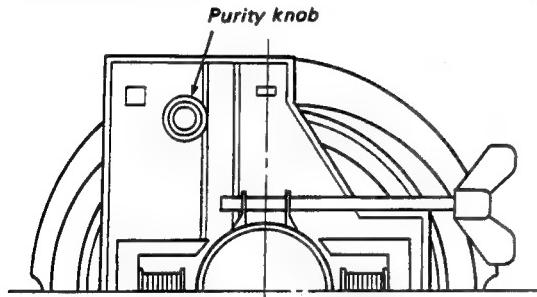


Fig. 1-1.

5. Slide DY (Deflection Yoke) as far forward as possible.
6. Set the neck assembly in the position shown in Fig. 1-2.

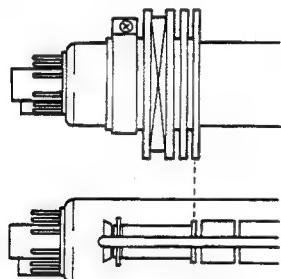


Fig. 1-2.

7. Set the screen to green only (R and B on the FRONT PANEL are in the IN position and G in the OUT position).
8. Turn purity knob as shown in Fig. 1-3 to bring the green on the center of the screen.

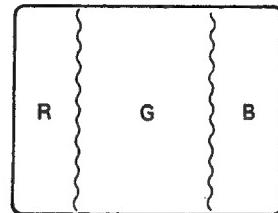


Fig. 1-3.

9. Slide DY back for uniform green raster.
10. Make the screen red only (G and B on the FRONT PANEL are in the IN position and R in the OUT position) and check landing.
11. Make the screen blue only (R and G on the FRONT PANEL are in the IN position and B in the OUT position) and check landing.
12. Adjust DY tilt and tighten DY set-screw.
13. Secure the DY with the spacers. (Fig. 1-4)

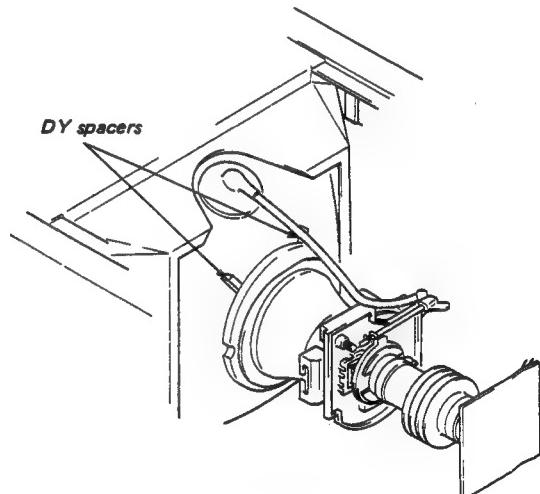
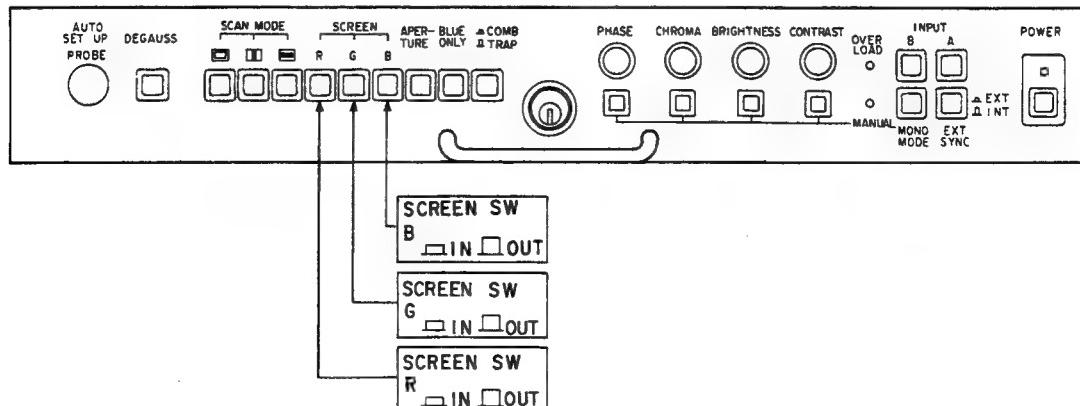


Fig. 1-4.

• Final check

After adjustments, check that there is no mislanding by facing the CRT towards East, West, North and South directions.

FRONT PANEL



[Focus adjustment]

1. Connect signal generator (TEKTRONIX 1411 and 1412).
2. Input a dot or cross-hatch signals.
3. Adjust the FOCUS control for best focus in the central portion of the screen as shown in Fig. 1-5.

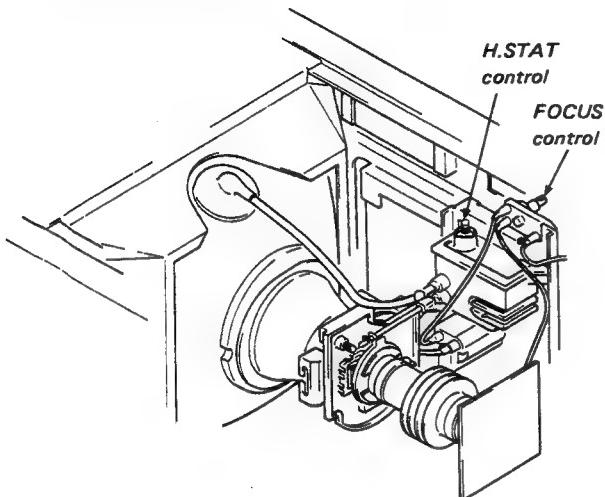
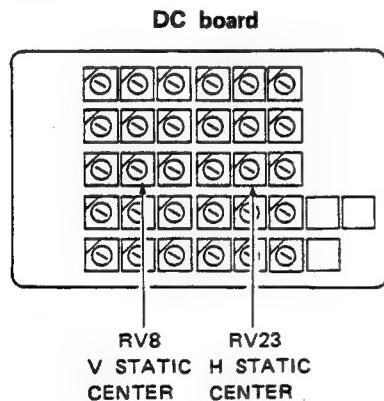


Fig. 1-5.

[Convergence Adjustment]**Preparation**

1. Complete the signal generator connection and feed the dot and cross-hatch signals.
2. Set the CONTRAST and BRIGHTNESS controls at the points where the dots and the cross-hatch can be observed clearly.
3. Set the H. STATIC CENTER control (RV23) on the DC board to mechanical center as shown in Fig. 1-6.



* Mechanical center

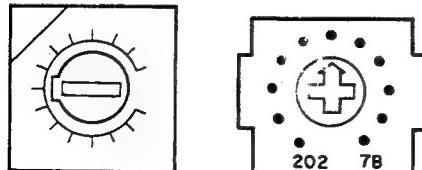


Fig. 1-6.

[Static Convergence]**• Horizontal Static Convergence**

1. Adjust H. STAT control of DCT BLOCK to match the convergence of red and green in the horizontal direction at screen center.
2. Perform the HMC correction when blue is out of convergence in the same direction all over the screen.
3. Move the BMC magnet to correct H. static convergence as shown in Fig. 1-7.

• Vertical Static Convergence

1. Adjust the V. STATIC CENTER (RV8) on the DC board to match the convergence of red and green in the vertical direction at screen center.
2. When blue is out of the convergence in the same direction all over the screen, perform the VMC correction.
3. Move the BMC magnet to correct static convergence as shown in Fig. 1-7.

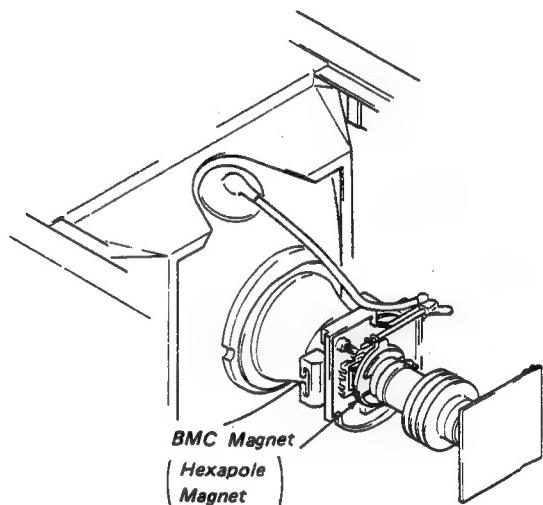


Fig. 1-7.

• HMC and VMC correction for BMC Magnet.

1. HMC (Horizontal, Mis, convergence) correction and motion of the Electron Beam with the Hexapole Magnet.

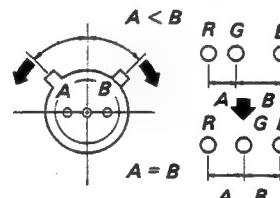
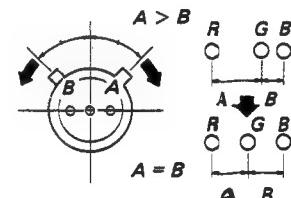
HMC correction (A)**HMC correction (B)**

Fig. 1-8.

2. VMC (Vertical, Mis, convergence) correction and motion of the Electron Beam with the Hexapole Magnet.

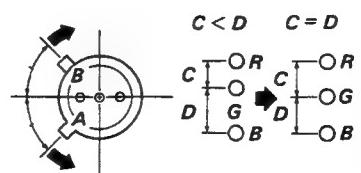
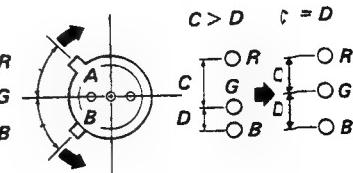
VMC correction (A)**VMC correction (B)**

Fig. 1-9.

[DYNAMIC CONVERGENCE]

1. Adjust CONVERGENCE controls (RV1 ~ RV30) on the DC board as shown in Fig. 1-10.
2. It can be adjusted as Red and Blue move in symmetry to the Green. (Green does not move)
3. Adjust the convergence corresponding to the portion of the screen as follows.
4. Always match the convergence in the order of center → on Y axis → on X axis → corner against the screen.

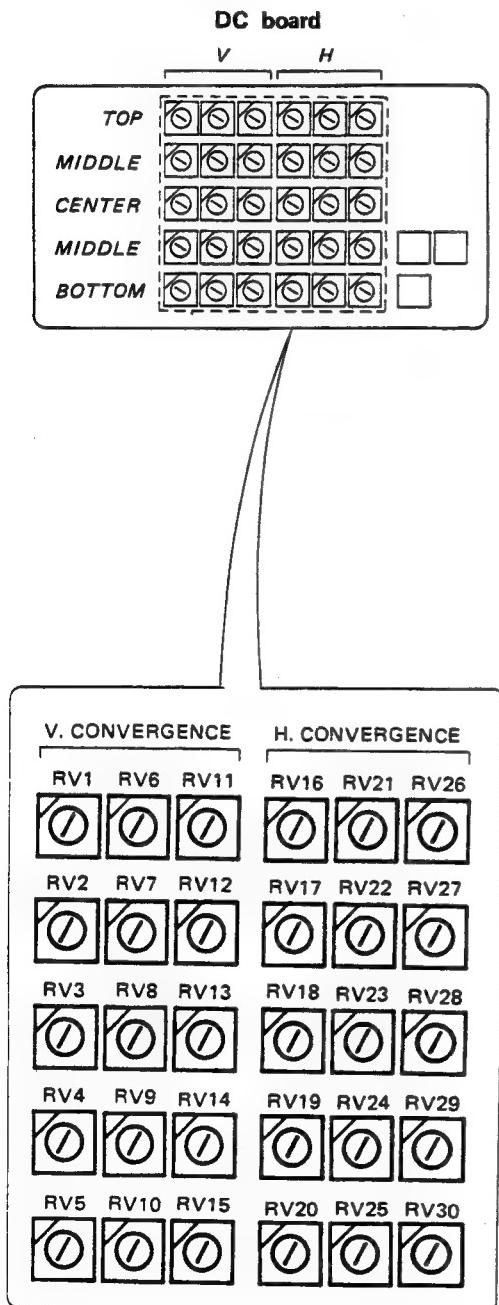


Fig. 1-10.

[CONVERGENCE PROCESS]

1. UNDER SCAN switch NOR (□)
2. Adjust RV23 and RV8 on the DC board to coincide with R, G and B dots at the center of the screen as shown in Fig. 1-11.

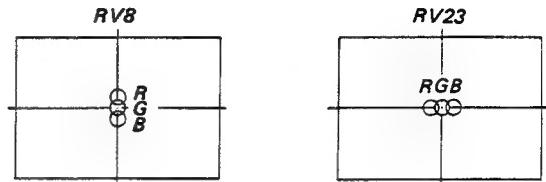


Fig. 1-11.

3. Adjust RV6, RV10, RV21 and RV25 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-12.

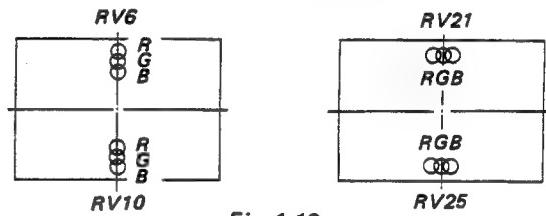


Fig. 1-12.

4. Adjust RV3, RV13 and RV18, RV28 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-13.

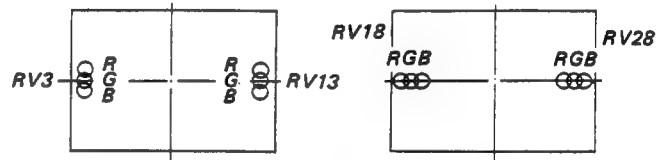


Fig. 1-13.

5. Adjust RV1, RV5 and RV11, RV15 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-14.

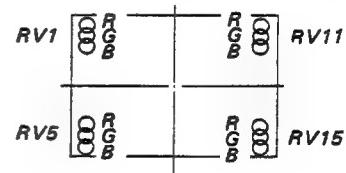


Fig. 1-14.

6. Adjust RV16, RV20 and RV26, RV30 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-15.

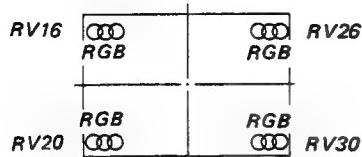


Fig. 1-15.

7. Adjust RV7, RV9 and RV22, RV24 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-16.

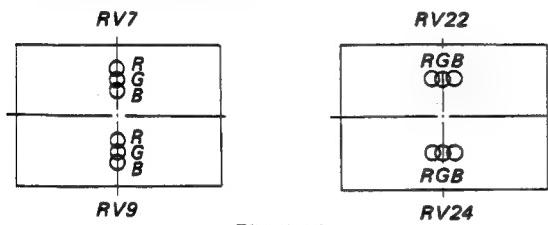


Fig. 1-16.

8. Adjust RV2, RV4 and RV12, RV14 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-17.

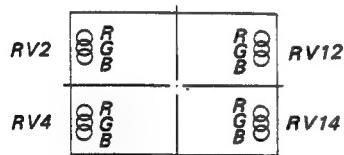


Fig. 1-17.

9. Adjust RV17, RV19 and RV27, RV29 on the DC board to coincide with the R, G and B dots as shown in Fig. 1-18.

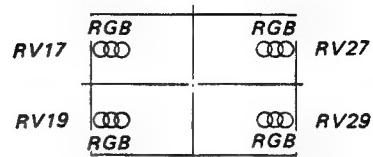


Fig. 1-18.

10. UNEDR SCAN switch UNDER (—)
11. Adjust RV31 (UNDER SCAN Y. BOW) on the DC board to coincide with the R, G and B dots as shown in Fig. 1-19.

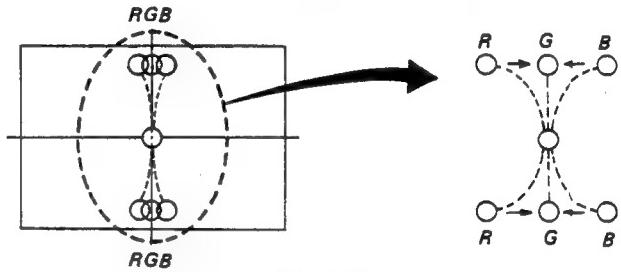


Fig. 1-19.

12. Adjust RV32 and RV33 (UNDER SCAN H. AMP) on the DC board to coincide with the R, G and B dots as shown in Fig. 1-20.

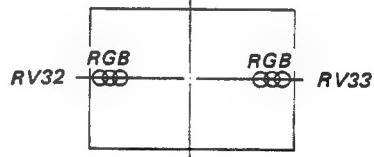
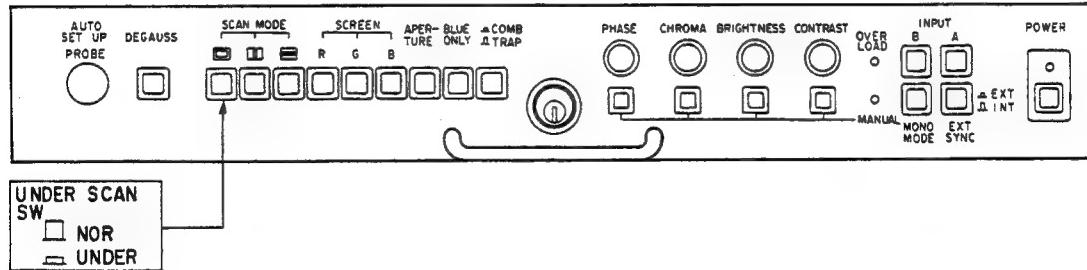
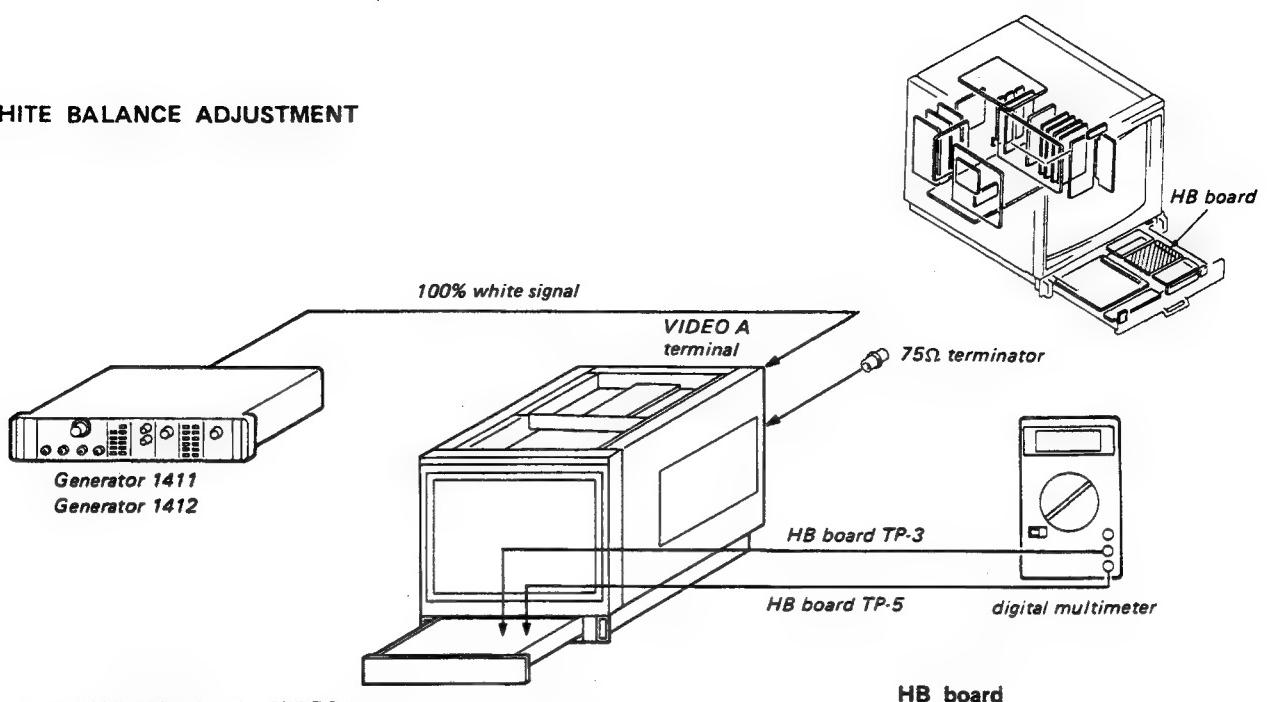


Fig. 1-20.

FRONT PANEL

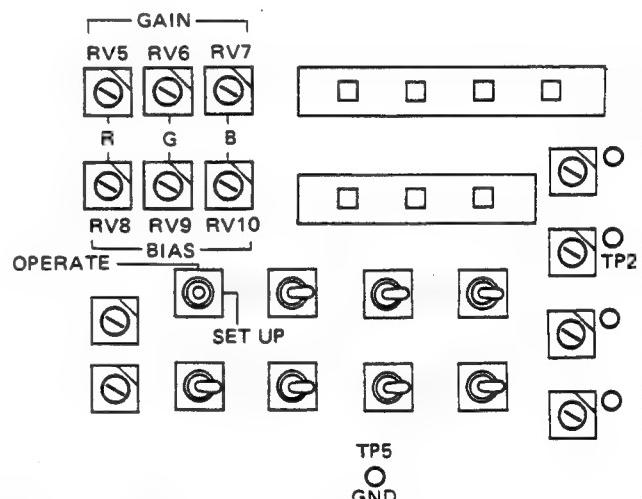


WHITE BALANCE ADJUSTMENT



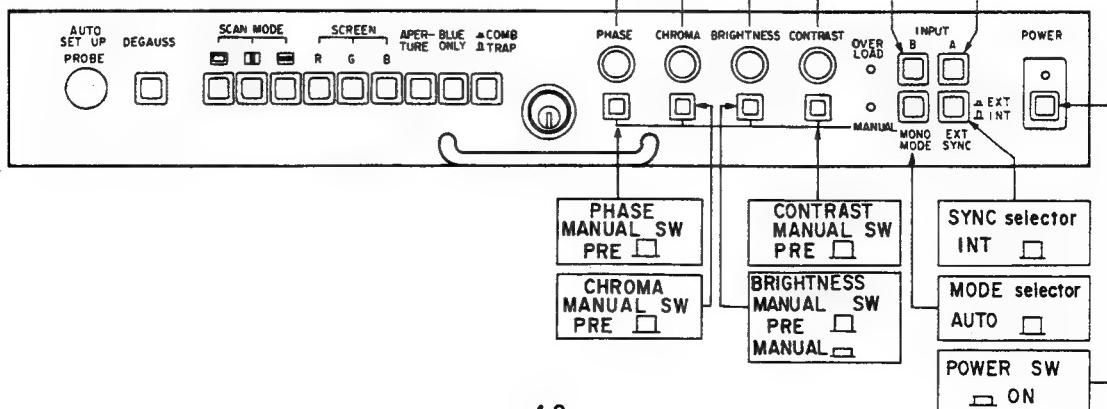
1. Input 100% white signal to VIDEO A connector.
2. WHITE/OPERATE/SET UP switch SET UP.
3. Connect the digital multimeter between the mechanical center of the RV2 and GND on the HD board. *1
4. BRIGHTNESS MANUAL switch MANUAL (■)
5. Adjust with the BRIGHTNESS control so that the voltage of the digital multimeter becomes -0.7 vdc.
6. Turn BIAS controls (RV8:Red, RV9:Green, RV10:Blue) on the HB board to adjust the BRIGHTNESS to 0.5NIT and white balance using COLOR ANALYZER and check 0.5NIT by LUMINANCE METER.
7. BRIGHTNESS MANUAL switch PRESET (□)
8. WHITE/OPERATE/SET UP switch OPERATE.
9. Turn GAIN controls (RV5: Red, RV6: Green, RV7:Blue) on the HB board to adjust the BRIGHTNESS at HIGH LIGHT to 103 NIT and white balance using COLOR ANALYZER and check 103 NIT by LUMINANCE METER.
10. Repeat procedure steps 4 to 9 if necessary.

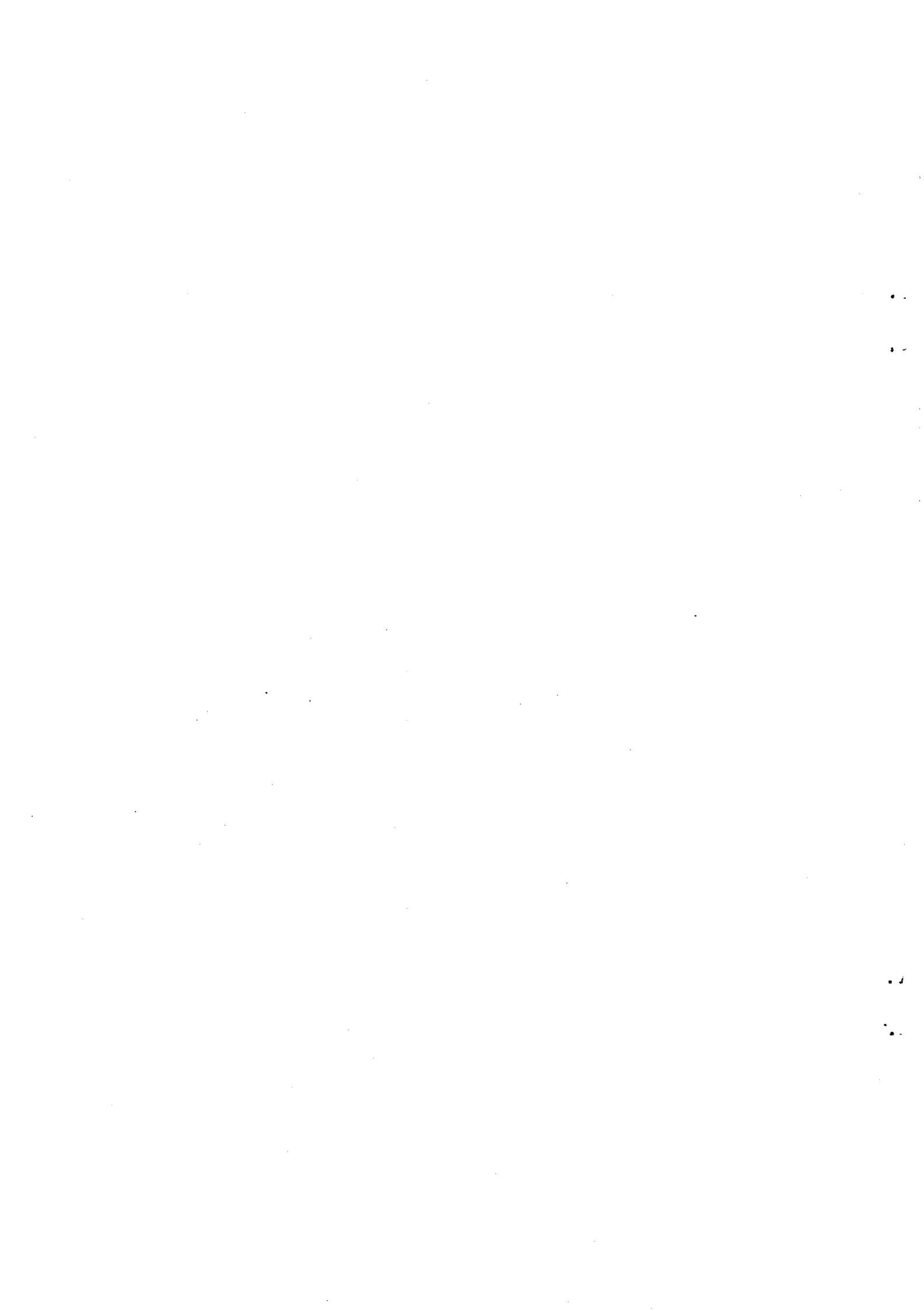
*1 HD board is replaced by HG board from the serial No. shown below.
In this case, connect the digital multimeter between the TP1 and GND on the HG board.



FRONT PANEL

HG board:
 /BVM-2010P ONLY Serial No. 2,001,081 and Higher
 BVM-2010PM ONLY Serial No. 2,000,004 and Higher
 BVM-2010PD ONLY Serial No. 2,000,042 and Higher
 BVM-2010PMD ONLY Serial No. 2,000,001 and Higher





4-6. SAFETY RELATED ADJUSTMENTS

B+ PROTECTOR (R52, R53)

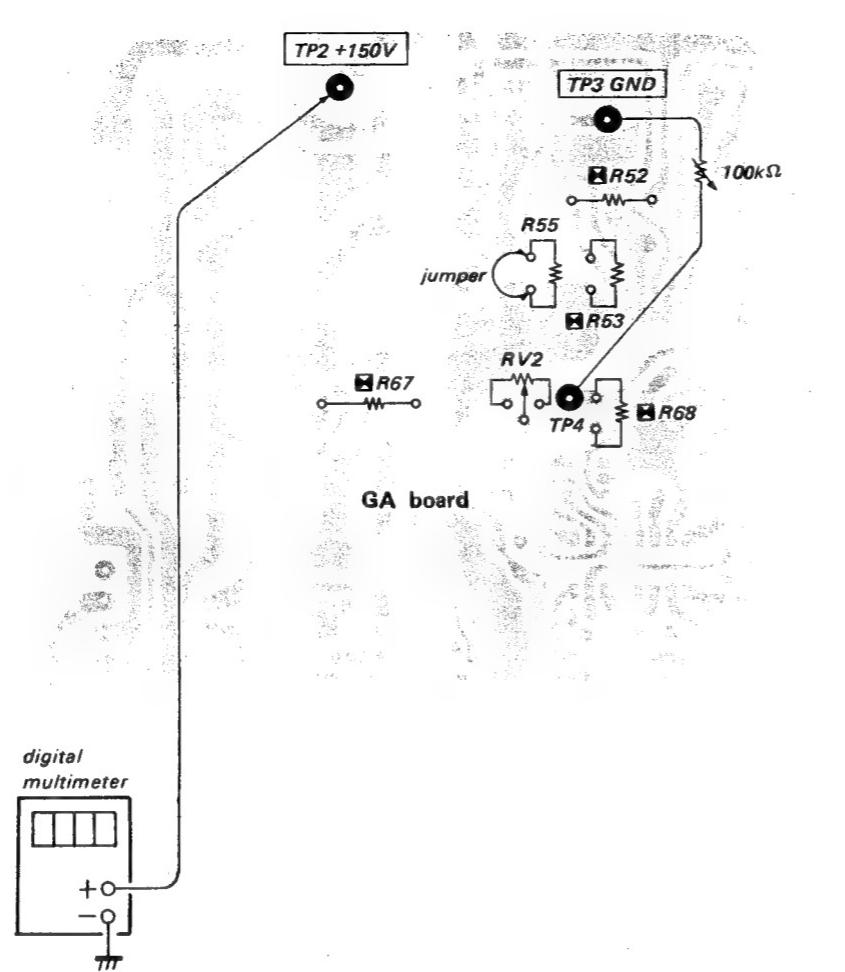
When replacing the following components (marked on the schematic diagram), make this confirmation.

- GA Board . . Q13, Q14, R52, R53
- GB Board . . D5, D6, D7, D8, Q3, Q4, Q5, R4, R5, R19, R20, R21, R22

It is necessary to use a digital multimeter for this confirmation.

Connect a digital multimeter to TP2 on GA Board.

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual button is out \perp)
2. Short-circuit R55 on GA Board.
3. Connect a $100k\Omega$ variable resistor between TP4 and TP3 (GND) on GA board.
4. Confirm that the reading on the digital multimeter drops abruptly from $+182.0V \sim +216.0V$ to 0V by turning the $100k\Omega$ variable resistor so that the value of the resistor decrease from maximum value.
5. If step 4 isn't satisfied, select resistance values of R52 and R53 which satisfy the specifications.
6. Restore these to their original states and confirm that the voltage at TP2 is $150.0 \pm 1.0V$.



B+ MAX CONFIRMATION (R67, R68)

When replacing the following components (marked on the schematic diagram), make this confirmation.

- GA Board . . C59, IC3, R67, R68, R78, RV2

It is necessary to use a digital multimeter for this confirmation.

Connect a digital multimeter to TP2 on GA Board.

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual button is out \perp)
2. Confirm that the reading on the digital multimeter is $+165.0V \pm 13.0V$ when RV2 variable resistor is turned to fully clockwise.
3. If the specifications are not met, select resistance values for R67 and R68 which satisfy the specifications.
4. After confirmation, make the reading on the digital multimeter into $+150.0V \pm 1.0V$ by adjusting RV2 on GA Board.

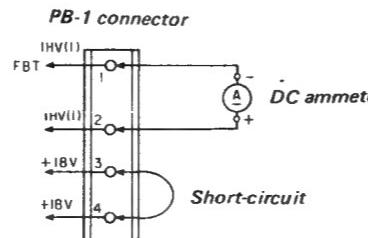
BEAM CURRENT PROTECTOR 1 CONFIRMATION (R222)

When replacing the following components (marked on the schematic diagram), make this confirmation.

PA Board . . D205, D206, D215, IC2, R201, R202, R213, R214, R220, R221, R222, R223, R224, R242

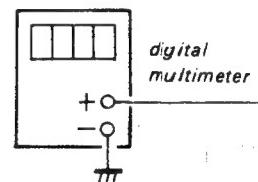
PB Board . . FBT, R1, R2, R5

1. Remove the PB-1 connector from PB board.
2. Connect a DC ammeter between Pin ① and Pin ② of the PB-1 connector and short-circuit Pin ③ and Pin ④ with a jumper.



3. Connect a digital multimeter to TP2 and TP4 (GND) of PA board.
4. Select the built-in all-white signal (Set the WHITE/OPERATE/SET UP selector on HB board to WHITE). Don't do it in free run.
5. Confirm that the reading on the digital multimeter of TP3 on PA board is between $+31.0V$ and $+33.5V$.
6. If the reading on the digital multimeter of TP2 is between $+31.0V$ and $+33.5V$ and more than $32.5V$, mount a $1M\Omega/4W$ resistor (metal-film) should be mounted at the portion of R239 on PA board. (Normally in this portion no component is mounted.)
7. Short-circuit R213 on PA board.
8. Short-circuit C1 on BI board.
9. Rotate the BRIGHTNESS and CONTRAST controls and confirm that the raster disappears when the value indicated on the DC ammeter is $2.20mA \pm 0.35mA$.
10. Remove the short-circuit from R213 and C1 and restore the PB-1 connector to its original state.
11. Remove the jumpers and DC ammeter and reconnect the PB-1 connector.
12. Set the BRIGHTNESS and CONTRAST controls to their maximum positions and confirm that the ABL operates (OVERLOAD Lamp Lights up).

4. Select the built-in all-white signal (Set the WHITE/OPERATE/SET UP selector on HB board to WHITE). Don't do it in free run.
5. Confirm that the reading on the digital multimeter of TP3 on PA board is between $+31.0V$ and $+33.5V$.
6. If the reading on the digital multimeter of TP2 is between $+31.0V$ and $+33.5V$ and more than $32.5V$, mount a $1M\Omega/4W$ resistor (metal-film) should be mounted at the portion of R239 on PA board. (Normally in this portion no component is mounted.)
7. Short-circuit R213 on PA board.
8. Short-circuit C1 on BI board.
9. Rotate the BRIGHTNESS and CONTRAST controls and confirm that the raster disappears when the value indicated on the DC ammeter is $2.20mA \pm 0.35mA$.
10. Remove the short-circuit from R213 and C1 and restore the PB-1 connector to its original state.
11. Remove the jumpers and DC ammeter and reconnect the PB-1 connector.
12. Set the BRIGHTNESS and CONTRAST controls to their maximum positions and confirm that the ABL operates (OVERLOAD Lamp Lights up).



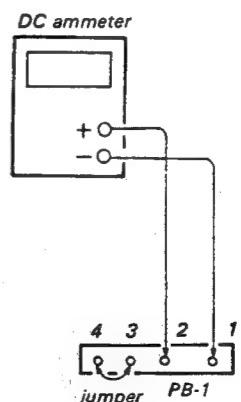
BEAM CURRENT PROTECTOR 2 (R239)

When replacing the following components (marked on the schematic diagram), make this confirmation.

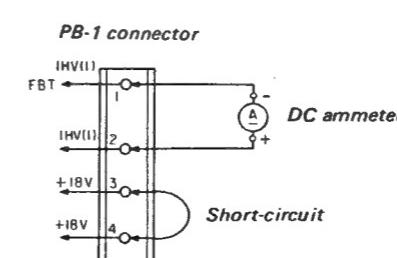
- PA Board . . D204, D216, R203, R204, R231, R232, R237, R238, R239, R240, R241, R247, IC3

PB Board . . R3, R4, R6, FBT

1. Remove the PB-1 connector from PB board.
2. Connect a DC ammeter between Pin ① and Pin ② of the PB-1 connector and short-circuit Pin ③ and Pin ④ with a jumper.



3. Connect a digital multimeter to TP3 and TP4 (GND) of PA board.



PB board

3. Connect a digital multimeter to TP2 and TP4 (GND) of PA board.
4. Select the built-in all-white signal (Set the WHITE/OPERATE/SET UP selector on HB board to WHITE). Don't do it in free run.
5. Confirm that the reading on the digital multimeter of TP2 on PA board is between +31.0V and +33.5V.
6. If the reading on the digital multimeter of TP2 is between +31.0V and +33.5V and more than 32.5V, mount a 1MΩ1/4W resistor (metal-film) should be mounted at the portion of R222 on PA board. (Normally in this portion no component is mounted.)
7. Short-circuit R231 on PA board.
8. Short-circuit C1 on BI board.
9. Rotate the BRIGHTNESS and CONTRAST controls and confirm that the raster disappears when the value indicated on the DC ammeter is $2.20\text{mA} \pm 0.35\text{mA}$.
10. Remove the short-circuit from R231 and C1 and restore the PB-1 connector to its original state.
11. Remove the jumpers and DC ammeter and reconnect the PB-1 connector.
12. Set the BRIGHTNESS and CONTRAST controls to their maximum positions and confirm that the ABL operates (OVERLOAD lamp lights up).

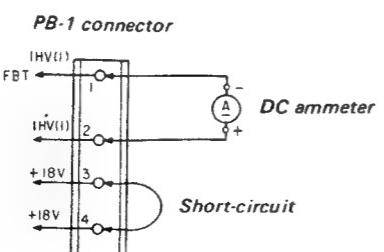
BEAM CURRENT PROTECTOR 2 (R239)

When replacing the following components (marked on the schematic diagram), make this confirmation.

PA Board . . D204, D216, R203, R204, R231, R232, R237, R238, R239, R240, R241, R247, IC3

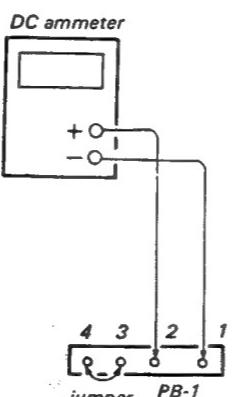
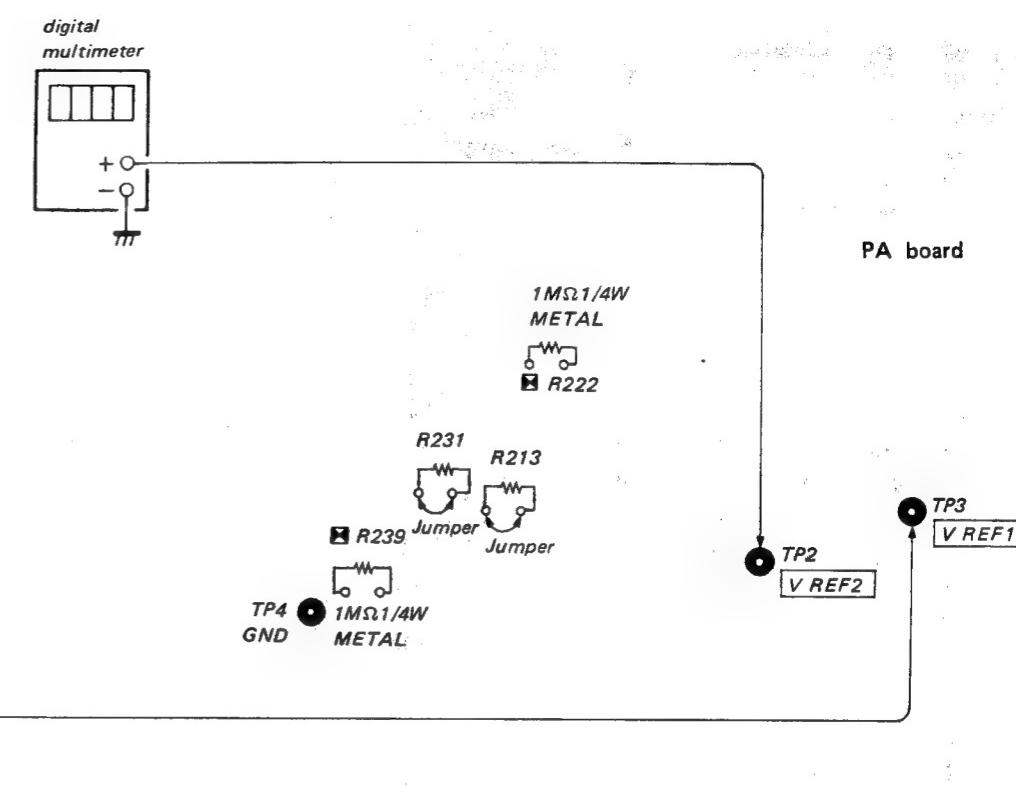
PB Board . . R3, R4, R6, FBT

1. Remove the PB-1 connector from PB board.
2. Connect a DC ammeter between Pin ① and Pin ② of the PB-1 connector and short-circuit Pin ③ and Pin ④ with a jumper.



3. Connect a digital multimeter to TP3 and TP4 (GND) of PA board.

4. Select the built-in all-white signal (Set the WHITE/OPERATE/SET UP selector on HB board to WHITE). Don't do it in free run.
5. Confirm that the reading on the digital multimeter of TP3 on PA board is between +31.0V and +33.5V.
6. If the reading on the digital multimeter of TP3 is between +31.0V and +33.5V and more than 32.5V, mount a 1MΩ1/4W resistor (metal-film) should be mounted at the portion of R239 on PA board. (Normally in this portion no component is mounted.)
7. Short-circuit R213 on PA board.
8. Short-circuit C1 on BI board.
9. Rotate the BRIGHTNESS and CONTRAST controls and confirm that the raster disappears when the value indicated on the DC ammeter is $2.20\text{mA} \pm 0.35\text{mA}$.
10. Remove the short-circuit from R213 and C1 and restore the PB-1 connector to its original state.
11. Remove the jumpers and DC ammeter and reconnect the PB-1 connector.
12. Set the BRIGHTNESS and CONTRAST controls to their maximum positions and confirm that the ABL operates (OVERLOAD lamp lights up).



BI board

R 1
(R222)

Components (marked on the schematic diagram).
15, IC2, R201, R202, 20, R221, R222, R223,

on PB board.
en Pin ① and Pin ② of circuit Pin ③ and Pin ④

DC ammeter
Short-circuit

HIGH VOLTAGE HOLD DOWN ADJUSTMENT AND CONFIRMATION

(R227, R228)

When replacing the following components (marked on the schematic diagram), make this adjustment.

DCT block

PA Board . .D205, D207, D215, IC2, R201, R202,
R213, R214, R225, R226, R227, R228,
R243, R245

It is necessary to use an electrostatic voltmeter or equivalent for this adjustment. Connect the electrostatic voltmeter to the anode cap.

Even though an electrostatic voltmeter may not be used, connect digital multimeter to **⑦** pin of IC4 on PA Board.

In case of using an electrostatic voltmeter

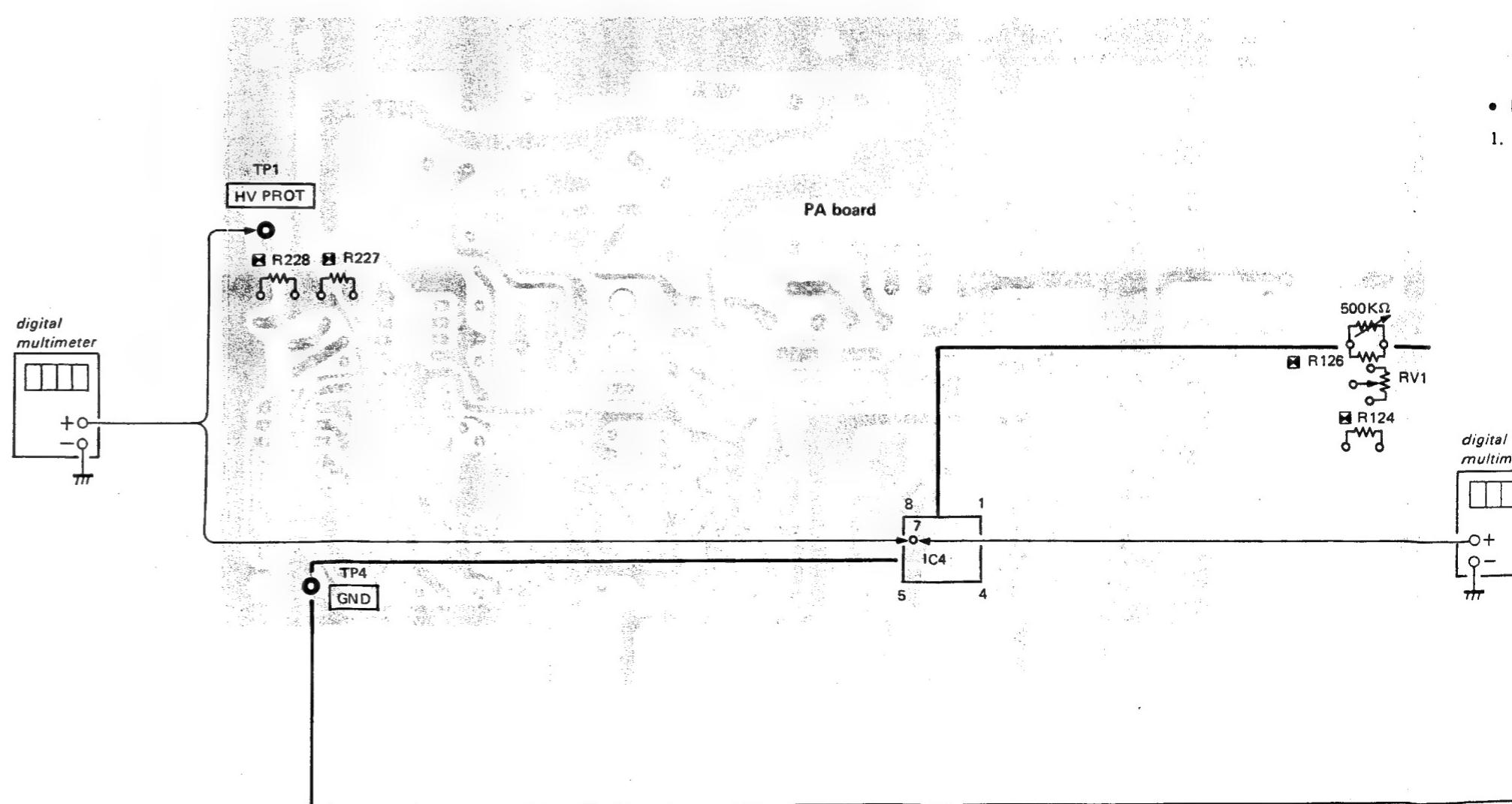
1. Connect the electrostatic voltmeter to the anode cap and connect a digital multimeter to TP1 and TP4 (GND) on PA board.

Note: Use an electrostatic multimeter which is calibrated and which has $2 \times 10^9 \Omega$ or more input impedance. (Example: ESH-27X or ESH-23X of the SINGER COMPANY)

- Use a digital multimeter which has 4 digits or more.
2. Receive a color bar signal and set the CONTRAST and BRIGHTNESS controls to the preset positions. (manual switch is OUT_{II})
 3. Determine the values of R227 and R228 as to get voltage of $9.55 \pm 0.13V$ at TP1.
 4. Connect 500kΩ variable resistor with R126 in parallel on PA board.
 5. Confirm that the reading on the electrostatic voltmeter drops abruptly from 28.0kV ~ 30.0kV to 0V by turning slowly the 500kΩ variable resistor so that the value of the resistor decrease from maximum value.
 6. Remove the 500kΩ variable resistor from R126 and confirm again that the voltage of the anode is 27.0kV $\pm 0.1kV$.

In case of not using an electrostatic voltmeter (using a digital multimeter.)

1. Connect the digital multimeter to TP1 and TP4 (GND) and to Pin **⑦** of IC4 and TP4 (GND).
2. Receive a color bar signal and set the CONTRAST and BRIGHTNESS controls to the preset positions.
3. Determine the values of R227 and R228 as to get voltage of $9.40 \pm 0.13V$ at TP1.
4. Connect 500kΩ variable resistor with R126 in parallel on PA board.
5. Confirm that the raster disappears when the voltage at Pin **⑦** of IC4 reaches $9.40 \pm 0.13V$ by turning slowly the 500kΩ variable resistor so that the value of the resistor decrease from maximum value.
6. Remove the 500kΩ variable resistor from R126.



if not using an electrostatic voltmeter (using a multimeter.)

Connect the digital multimeter to TP1 and TP4 (GND)

- o Pin ⑦ of IC4 and TP4 (GND).

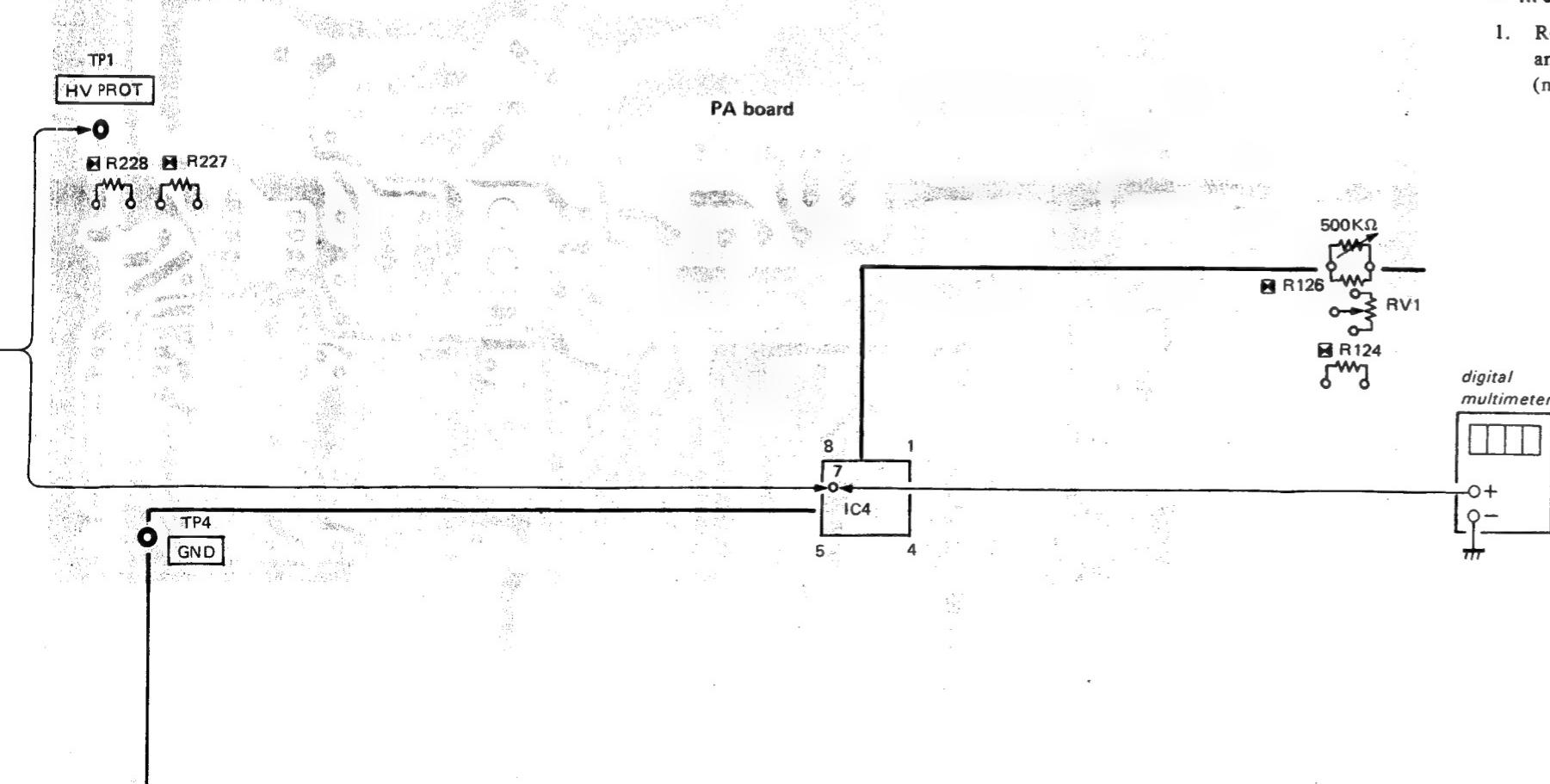
Give a color bar signal and set the CONTRAST and BRIGHTNESS controls to the preset positions.

Determine the values of R227 and R228 as to get voltage $9.40 \pm 0.13V$ at TP1.

Connect 500kΩ variable resistor with R126 in parallel with board.

Note that the raster disappears when the voltage at ⑦ of IC4 reaches $9.40 \pm 0.13V$ by turning slowly the 500kΩ variable resistor so that the value of the resistance decrease from maximum value.

Remove the 500kΩ variable resistor from R126.



HIGH VOLTAGE REGULATOR CONFIRMATION

(R124, R126)

When replacing the following components (marked on the schematic diagram), make this adjustment.

DCT block

PA Board . . D216, IC1, IC4, R123, R124, R125, R126, R136, R137, R138, R203, R204, RV1

It is necessary to use an electrostatic voltmeter or equivalent for this adjustment. Connect the electrostatic voltmeter to the anode cap.

Even though an electrostatic voltmeter may not be used, connect digital multimeter to ⑦ pin of IC4 on PA Board.

Note: Use an electrostatic voltmeter which is calibrated, and which has $2 \times 10^9 \Omega$ or more input impedance.

example: ESH-27X or ESH-23X of the SINGER COMPANY

Use a digital multimeter which has 4 digit or more.

In case of using an electrostatic voltmeter

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual switch is out \square)

2. Turn RV1 on the PA Board for a maximum reading on the electrostatic voltmeter. (Fully clockwise)
3. Confirm that the indicated value on the electrostatic voltmeter is $27.40kV \pm 0.1kV$ at this time.
4. If necessary, select the value of R124 and R126 (1/4W metal-film) and repeat above step 2 through 4.
5. After confirmation, adjust RV1 for $27.0kV \pm 0.1kV$ on the electrostatic voltmeter.

In case of using a digital multimeter

1. Receive a color bar signal and set CONTRAST and BRIGHTNESS controls to preset position. (manual switch is out \square)
2. Connect the digital multimeter to Pin ⑦ of IC4 and TP4 (GND) on PA board.
3. Set RV1 on PA board to its mechanical center.
4. Select resistance values for R124 and R126 which provide a voltage reading of $8.75V \pm 0.1V$ at Pin ⑦ of IC4 and mount.

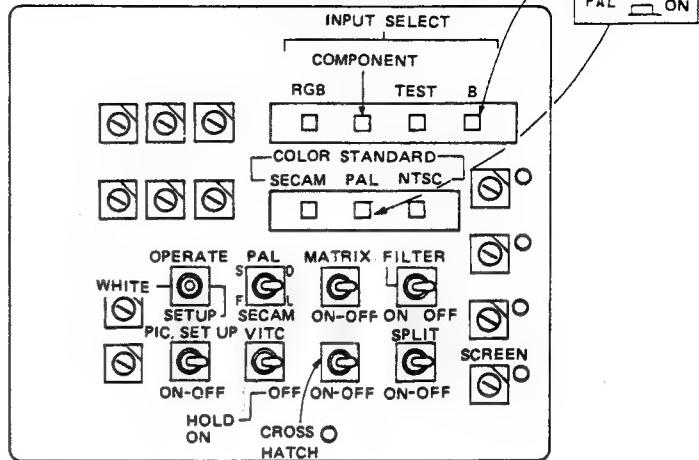
4-7. CIRCUIT ADJUSTMENTS

- To make the following adjustments, unless otherwise specified, the controls knobs and switches shall be preset as described below.

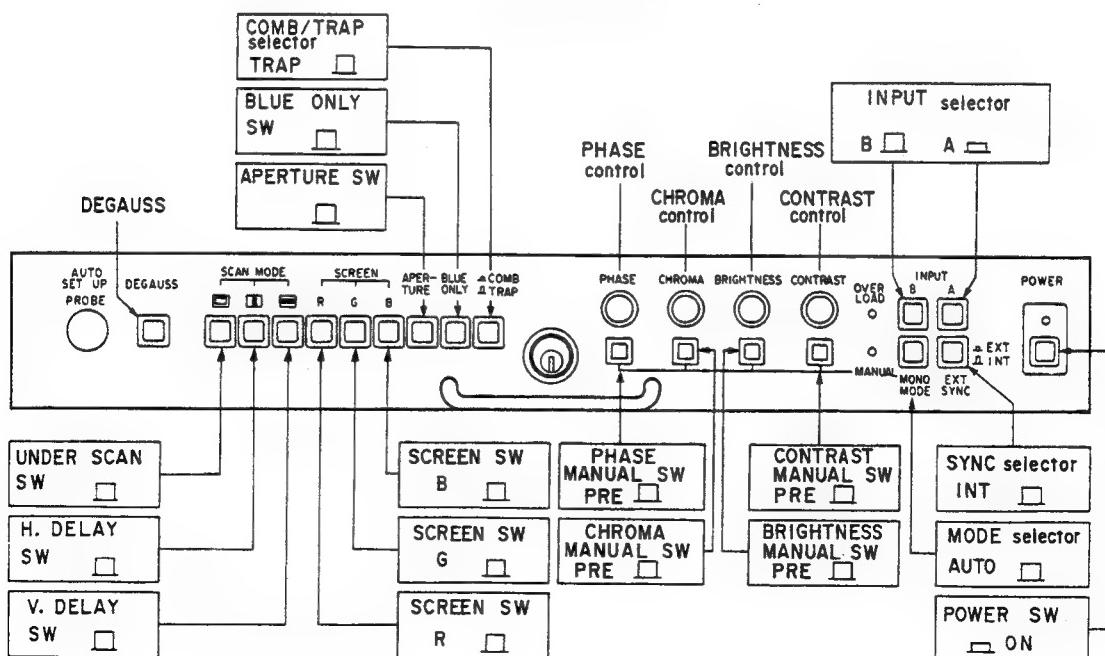
FRONT PANEL

1. INPUT selector A
 2. SYNC selector INT
 3. MODE selector AUTO
 4. CONTRAST MANUAL switch .. PRESET
 5. BRIGHTNESS MANUAL switch .. PRESET
 6. CHROMA MANUAL switch .. PRESET
 7. PHASE MANUAL switch .. PRESET
 8. SCAN MODE switch
 - UNDER SCAN NOR
 - H. DELAY NOR
 - V. DELAY NOR
 9. SCREEN switch (R) NOR
 10. SCREEN switch (G) NOR
 11. SCREEN switch (B) NOR
 12. APT switch NOR
 13. BLUE ONLY switch NOR
 14. COMB/TRAP filter selector TRAP
-
15. INPUT SELECT buttons B
 16. COLOR STANDARD buttons .. PAL
 17. FILTER switch OFF
 18. MATRIX switch OFF
 19. PAL/SECAM mode selector..... D(L)
 20. WHITE/OPERATE/SET UP
 - selector OPERATE
-
21. SPLIT SCREEN switch OFF
 22. CROSS HATCH switch OFF
 23. VITC switch OFF
 24. PIC. SET UP switch OFF
 25. AFC switch 2m sec
- DA board

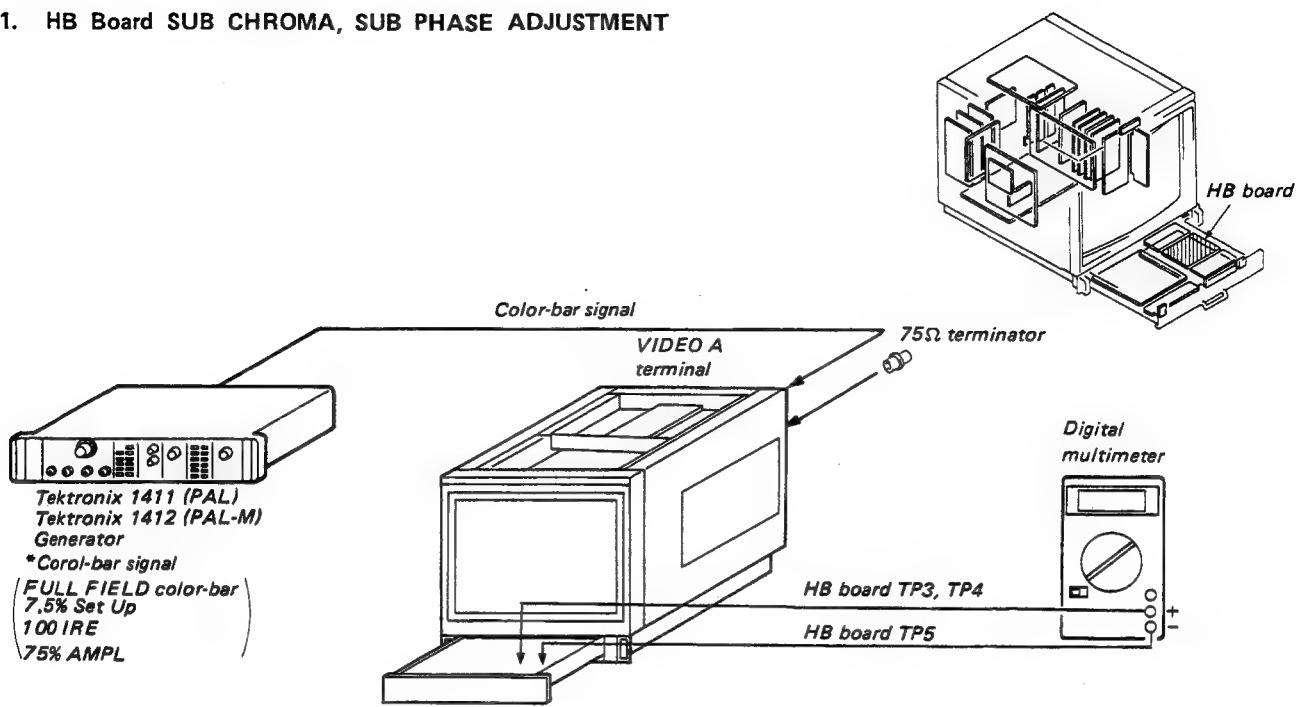
SUB CONTROL PANEL (HB board)



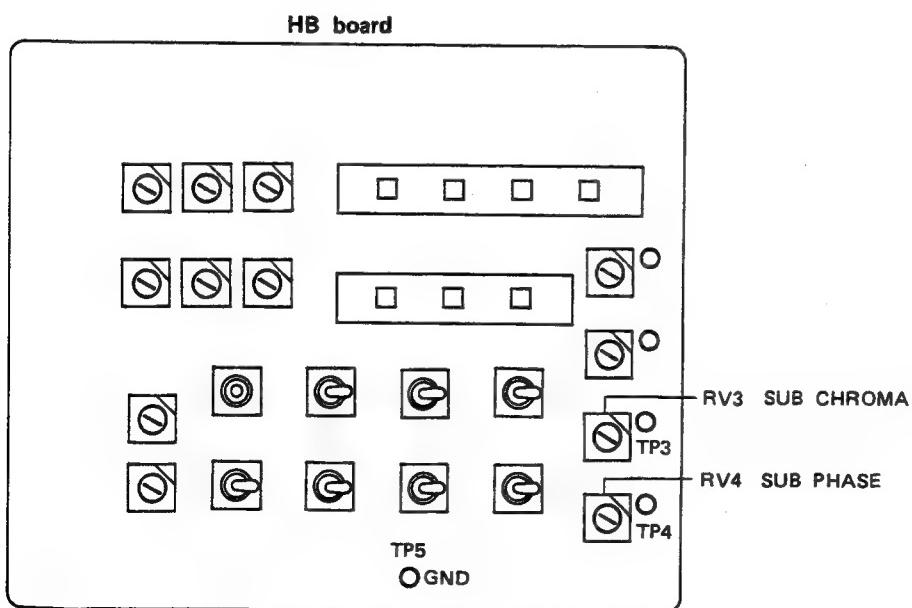
FRONT PANEL



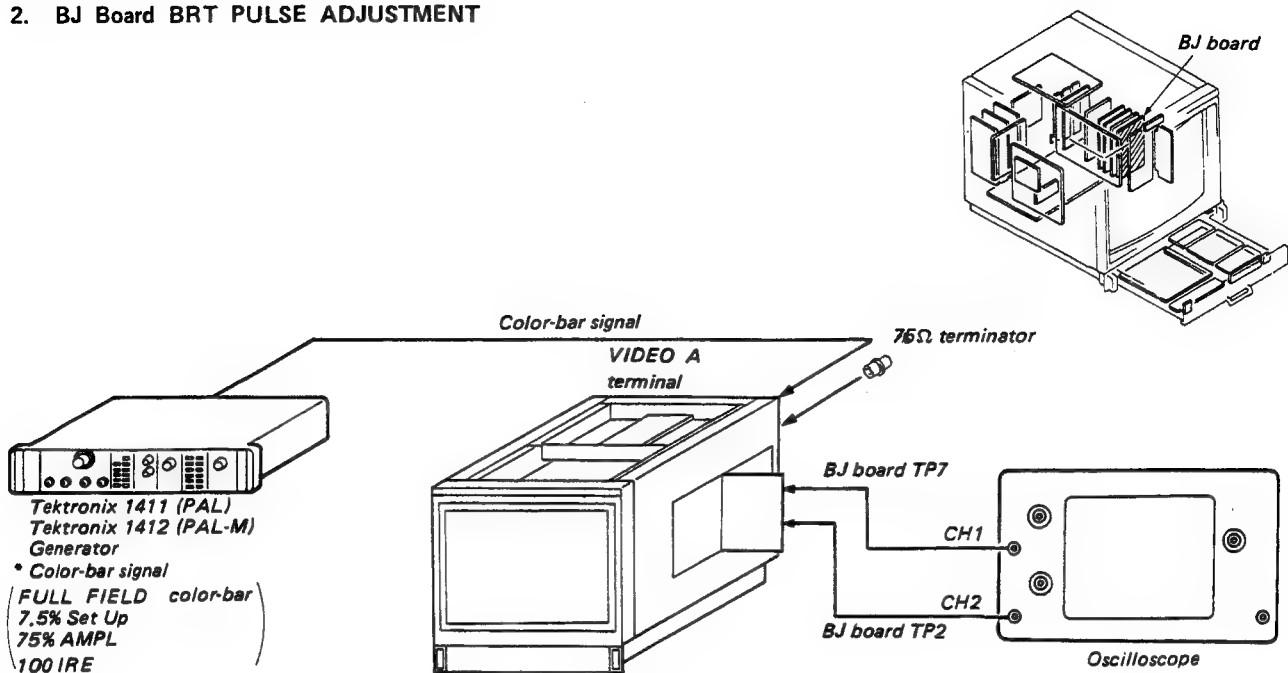
1. HB Board SUB CHROMA, SUB PHASE ADJUSTMENT



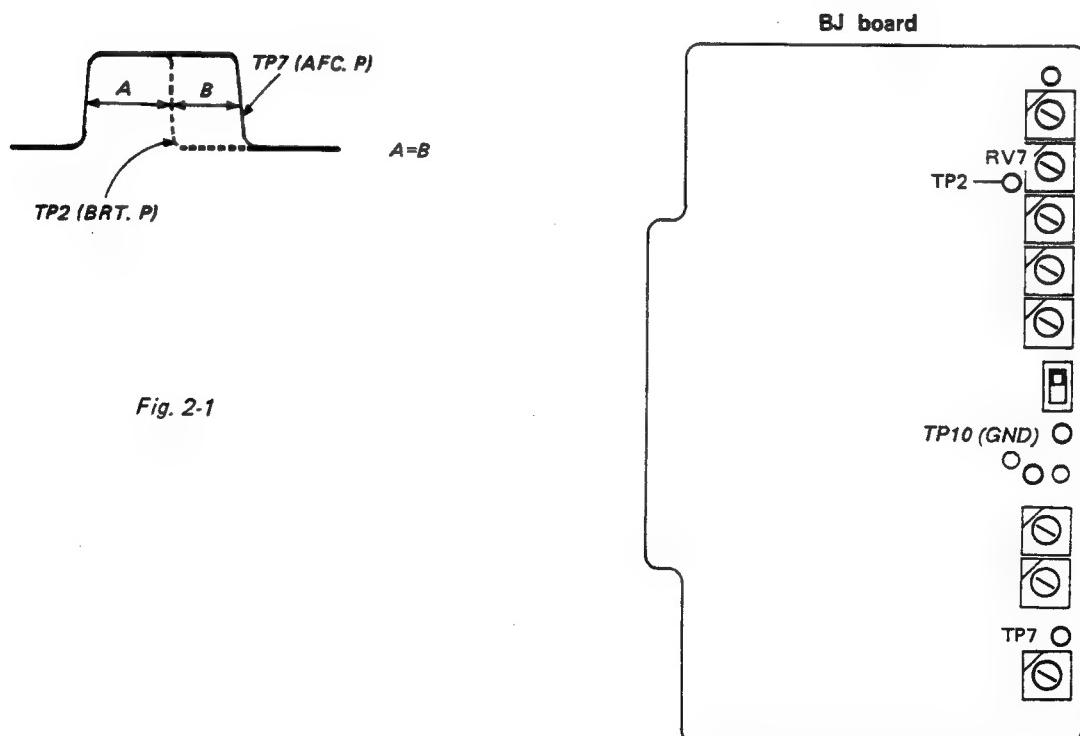
1. Connect a digital multimeter to the TP3 of HB board and TP5 (ground).
2. Adjust to -5.5V DC with RV3. (SUB CHROMA)
3. Connect a digital multimeter to the TP4 of HB board and TP5.
4. Adjust to 0V DC with RV4. (SUB PHASE) of HB board.



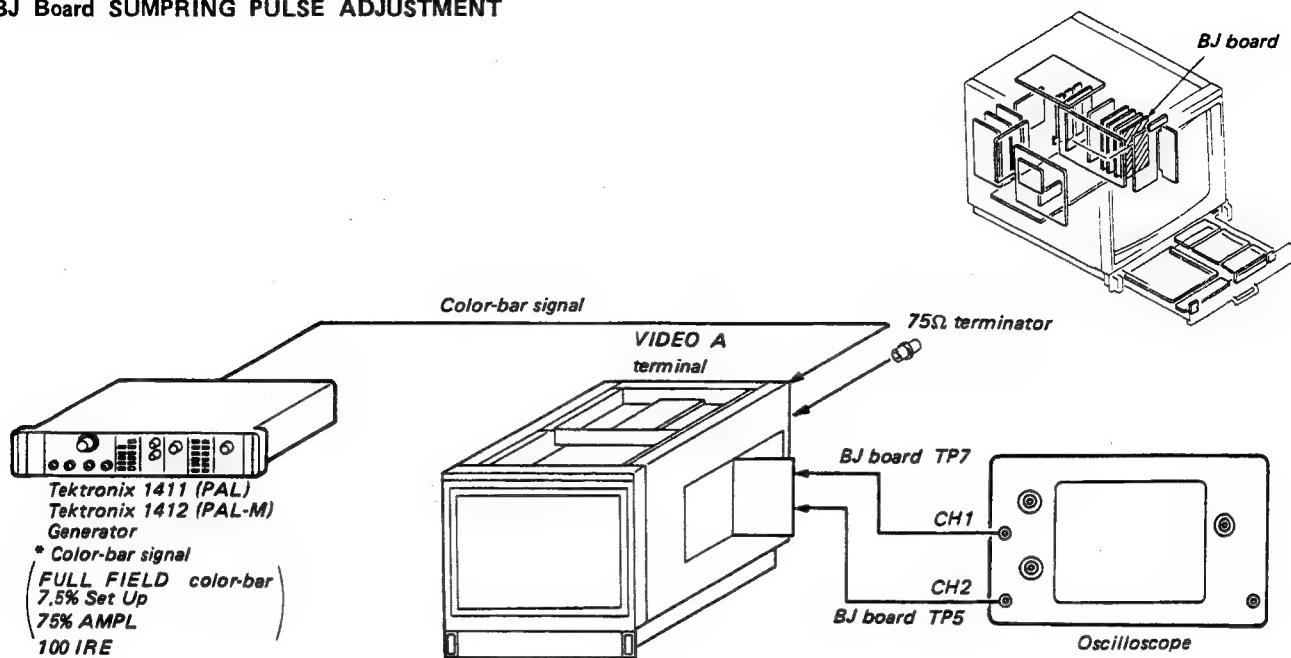
2. BJ Board BRT PULSE ADJUSTMENT



1. Input a color-bar signal to VIDEO A terminal of the set.
2. Connect an oscilloscope (CH1 probe) to the TP7 of BJ board and oscilloscope (CH2 probe) to the TP2 of BJ board.
3. Adjust RV7 to obtain the waveform on the oscilloscope as shown in Fig. 2-1.



BJ Board SUMPRING PULSE ADJUSTMENT



1. Input a color-bar signal to VIDEO A terminal of the set.
2. Connect an oscilloscope (CH 1 probe) to the TP7 of BJ board and Connect an oscilloscope (CH 2 probe) to the TP5 of BJ board.
3. Adjust RV5 to obtain the waveform on the oscilloscope as shown in Fig. 2-2.

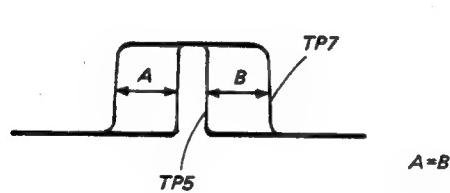
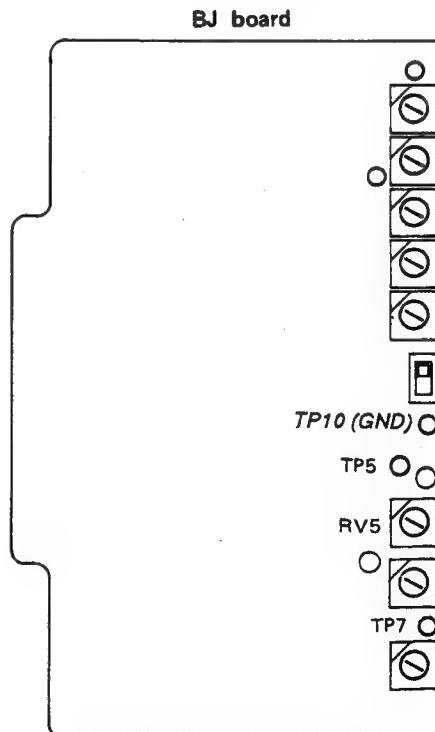
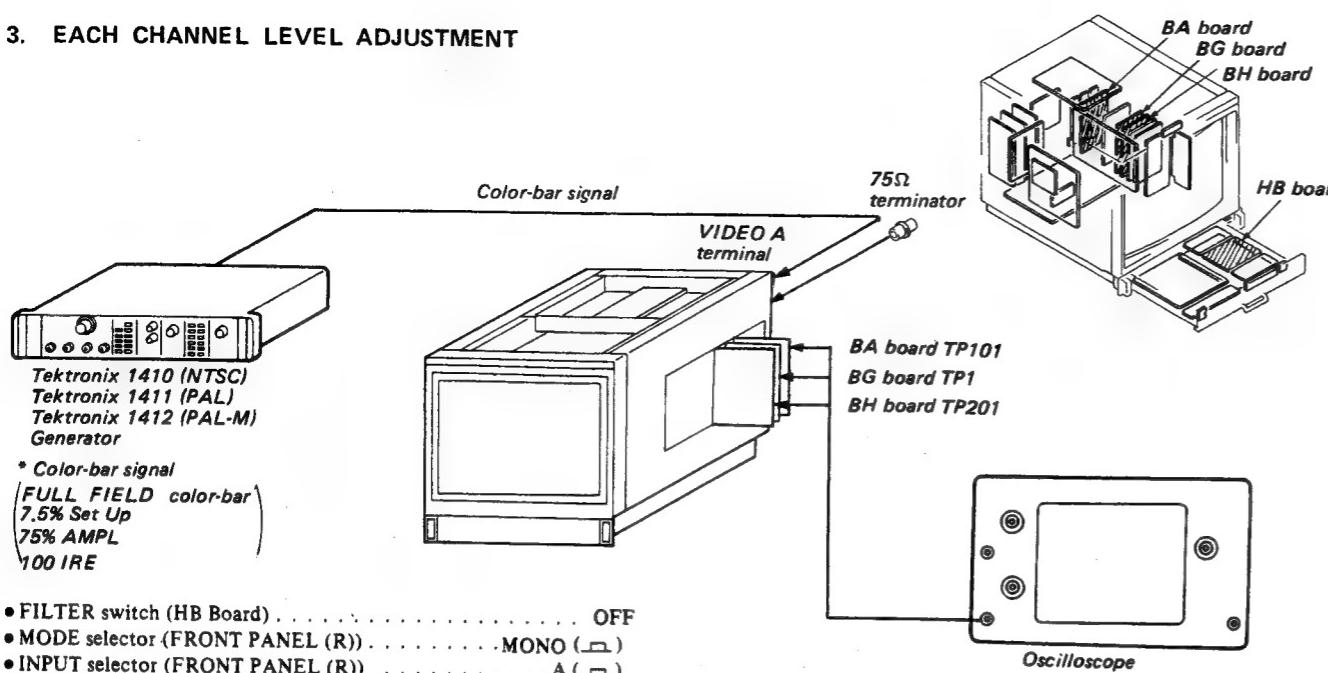


Fig. 2-2



3. EACH CHANNEL LEVEL ADJUSTMENT



- FILTER switch (HB Board) OFF
 - MODE selector (FRONT PANEL (R)) MONO (■)
 - INPUT selector (FRONT PANEL (R)) A (■)

BA board

1. Input a color-bar signal to VIDEO A terminal to the set.
 2. Connect an oscilloscope to the TP101 of BA board.
 3. Adjust to 1.0Vp-p with RV101 of BA board as shown in Fig. 3-1.

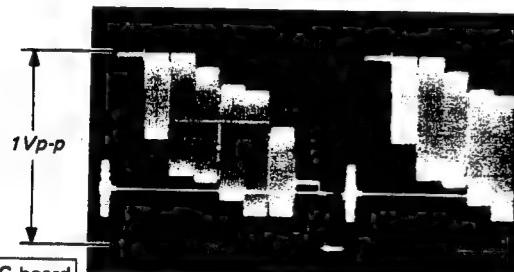


Fig. 3-

4. Connect an oscilloscope to the TP1 of BG board.
5. Adjust to 1.0Vp-p with RV3 of BG board as shown in Fig. 3-1.
6. Connect an oscilloscope to the TP201 of BH board.

HB board

7. Adjust RV2 (SUB BRT) of HB board so that **(A)** (black level) is 0V DC as shown in Fig. 3-2.
 8. Adjust RV1 (SUB CONT) of HB board so that **(B)** (100% white level) is -0.7V DC as shown in Fig. 3-2.

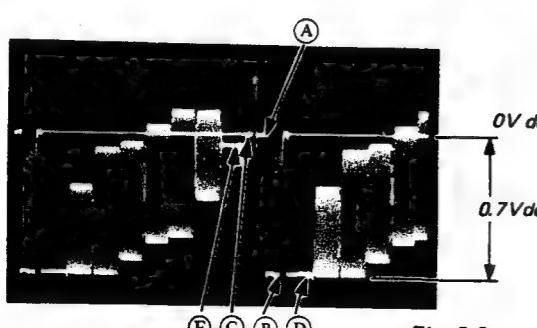


Fig. 3-1

- (A) *Black level*
 - (B) *100% White level*
 - (C) *0 IRE level*
 - (D) *100 IRE level*
 - (E) *7.5 IRE level*

BH board

9. S2 (BH Board) 0 IRE
 Adjust RV1 of BH board so that the **(C)** (0 IRE level) coincides with **(A)** (Black level) as shown in Fig. 3-3.

10. Adjust RV3 of BH board so that the **(D)** (100 IRE level) coincides with **(B)** (100% white level) as shown in Fig. 3-3.



Fig. 3-1

BH board

11. S2 (BH Board) 7.5 IRE
 Adjust RV2 of BH board so that the (E) (7.5 IRE level) coincides with (A) (Black level) as shown in Fig. 3-4.

12. Set S2 (BH Board) to 0 IRE.

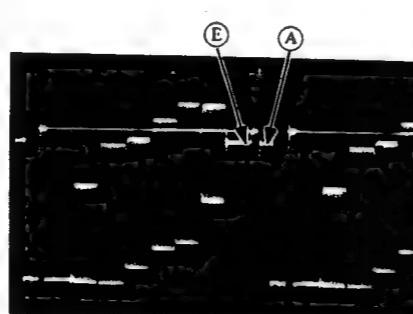
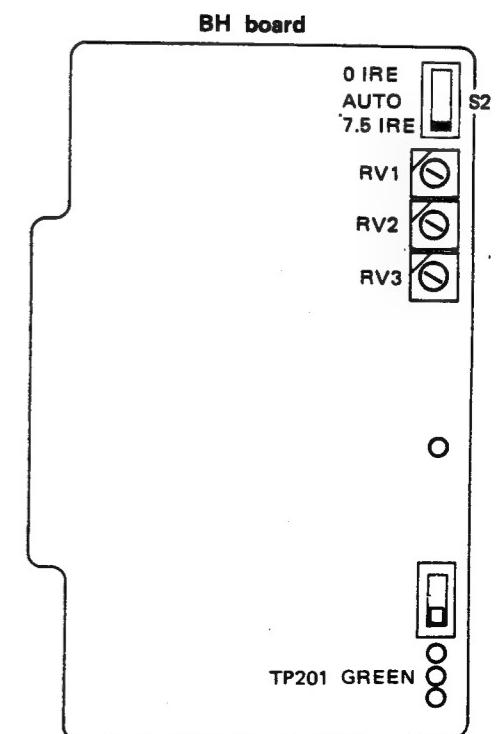
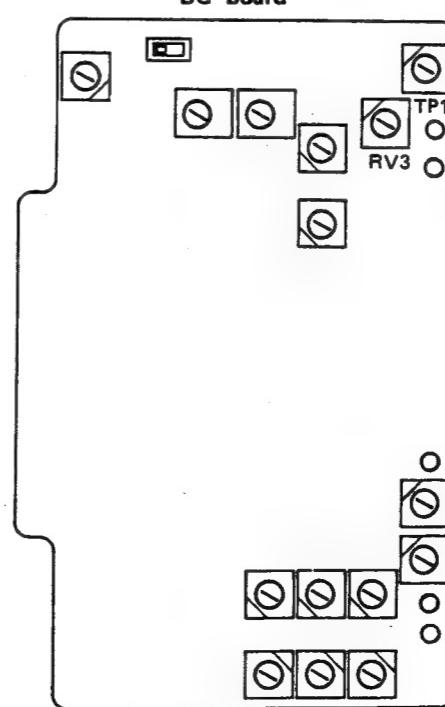
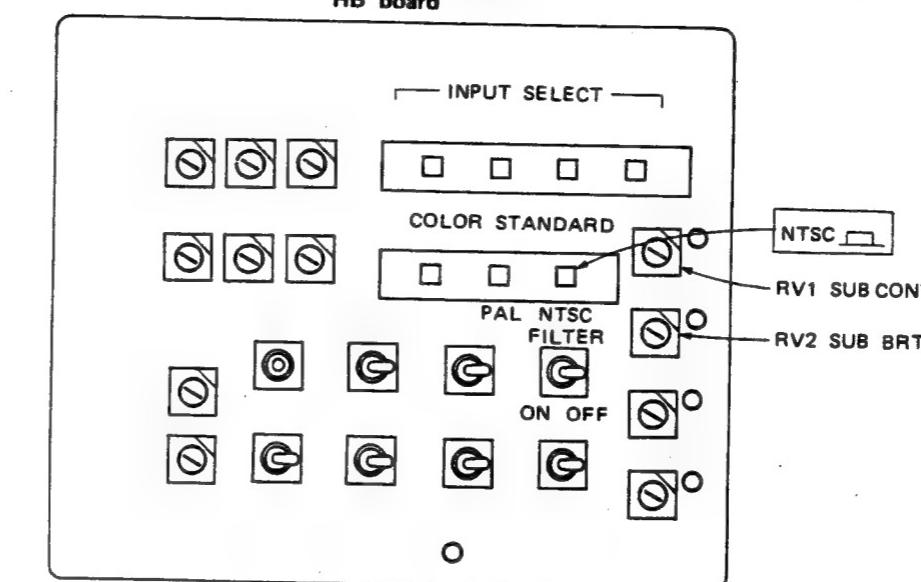
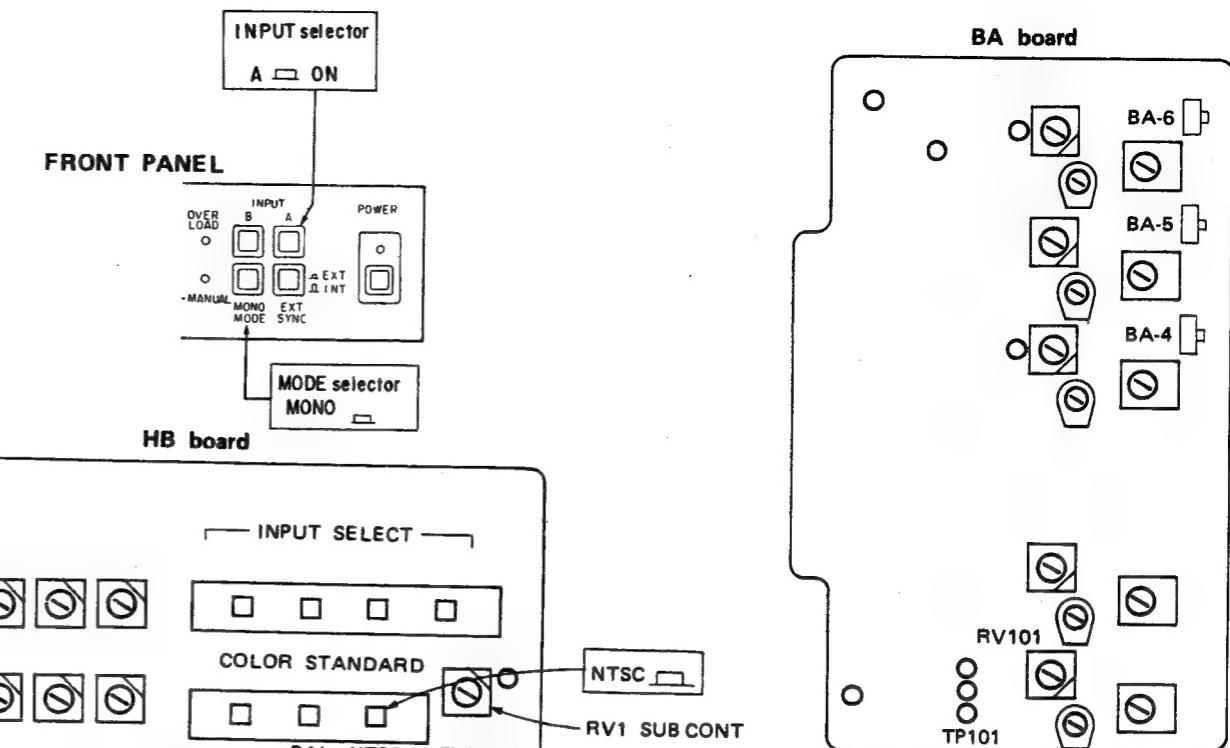


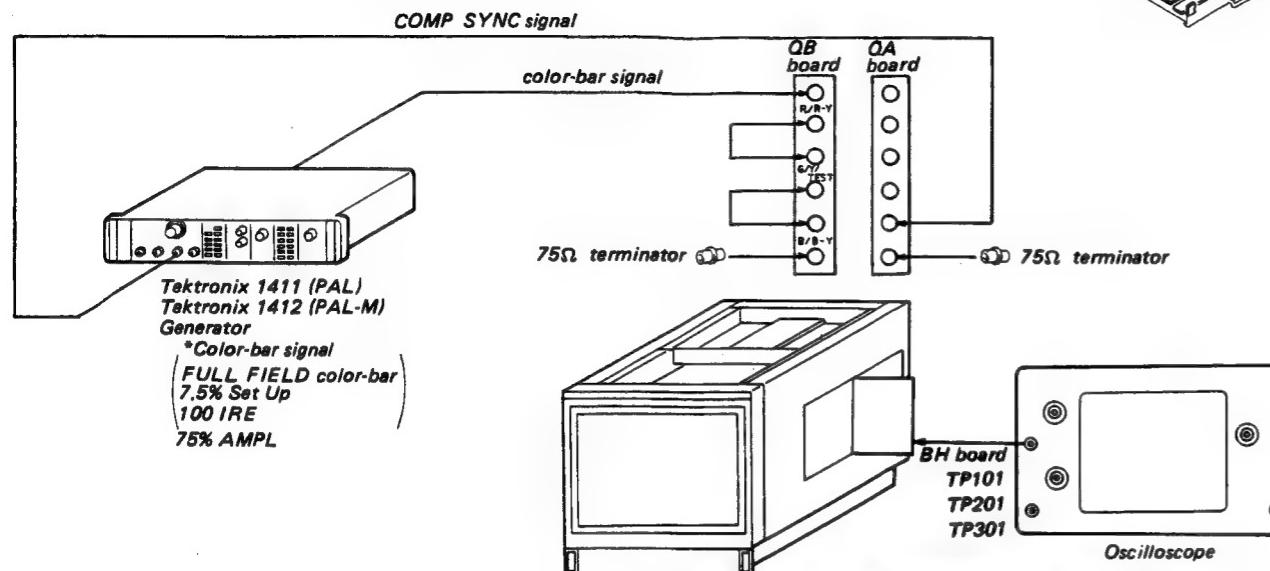
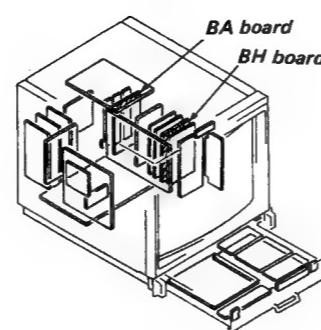
Fig. 3-



BA board

14. Input color-bar signal to R.G.B terminal (QB-board) of this set, also EXT-COMP-SYNC signal to COMP VIDEO terminal (QA-board).

- INPUT selector (FRONT PANEL (R)) B ()
- SYNC selector (FRONT PANEL (R)) EXT ()
- INPUT SELECT buttons
(SUB CONTROL PANEL (R)) RGB()



15. Connect an oscilloscope to TP101 of BH board.
 16. Adjust RV401 of BA board so that the (D) (100 IRE level) coincides with (B) (100% white level) as shown in Fig. 3-5.
 17. Connect an oscilloscope to TP201 of BH board.
 18. Adjust RV501 of BA board so that the (D) (100 IRE level) coincides with (B) (100% white level) as shown in Fig. 3-5.
 19. Connect an oscilloscope to TP101 of BH board.
 20. Adjust RV601 of BA board so that the (D) (100 IRE level) coincides with (B) (100% white level) as shown in Fig. 3-5.

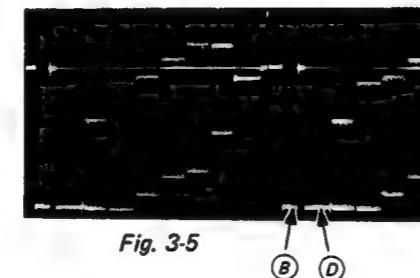
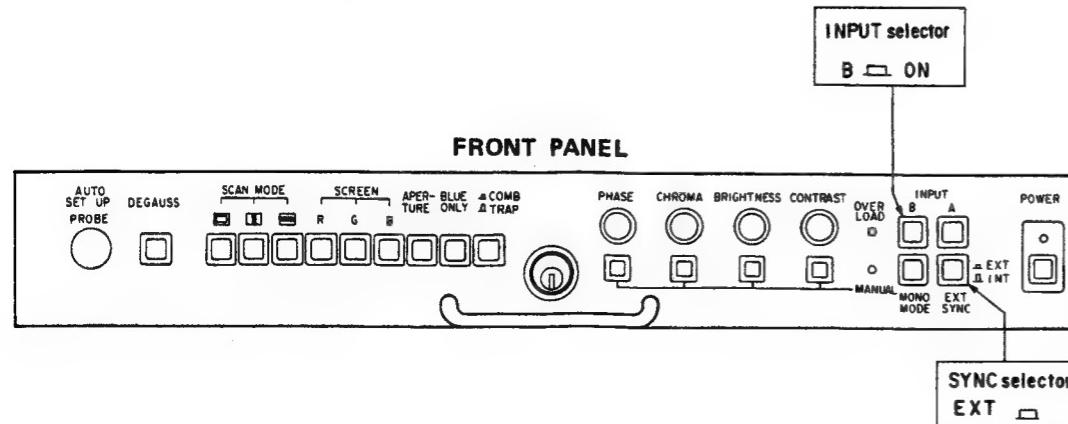


Fig. 3-5



4. BA Board INPUT CIRCUIT FREQUENCY CHARACTERISTIC ADJUSTMENT

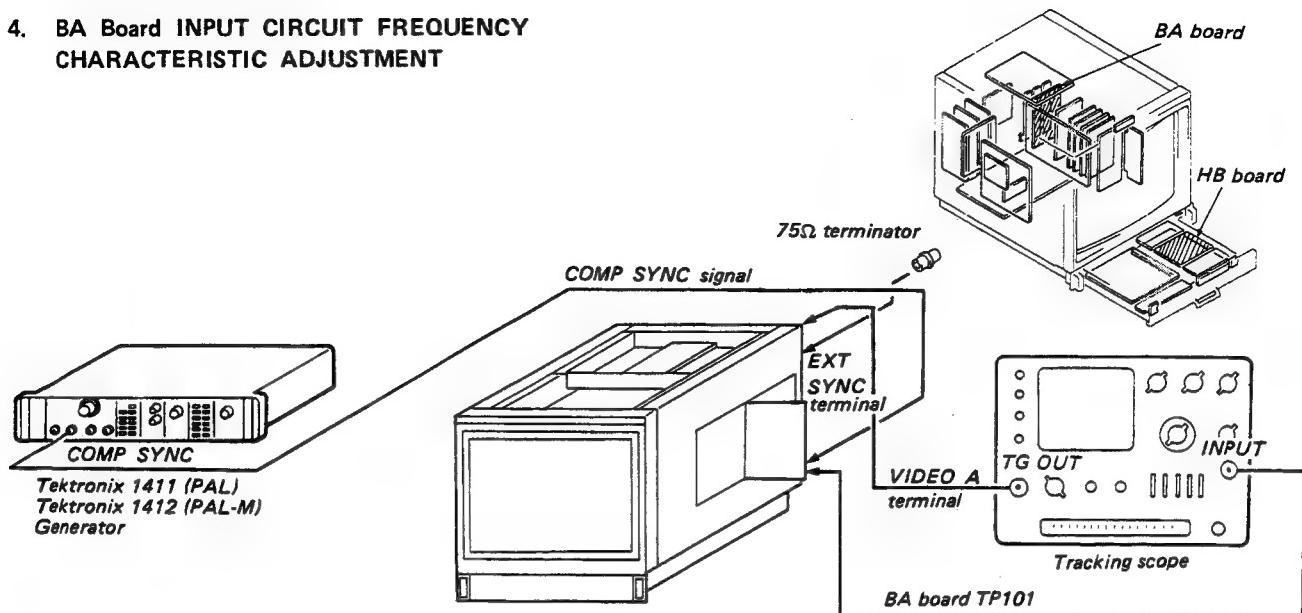


Fig. 4-1

1. Complete the connection as shown in Fig. 4-1.
 - INPUT selector A (—)
 - SYNC selector EXT (—)
 - CONTRAST control Minimum
 - BRIGHTNESS control Minimum
2. Adjust CV101 so that minimum as shown in Fig. 4-2.

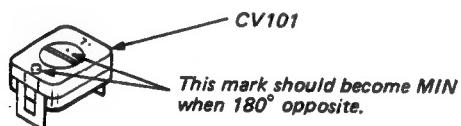


Fig. 4-2

3. Adjust output waveform peak to 12MHz with CV102 of the BA board as shown in Fig. 4-3.

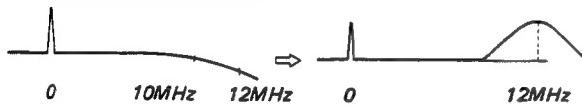


Fig. 4-3

4. Adjust CV101 of the BA board so that the output waveform becomes flat in a range of 0 to 10MHz as shown in Fig. 4-4.

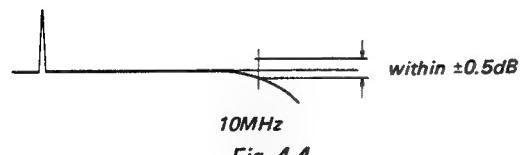
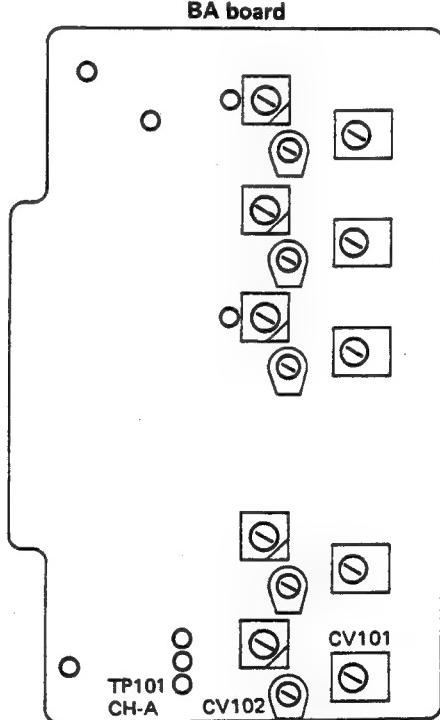
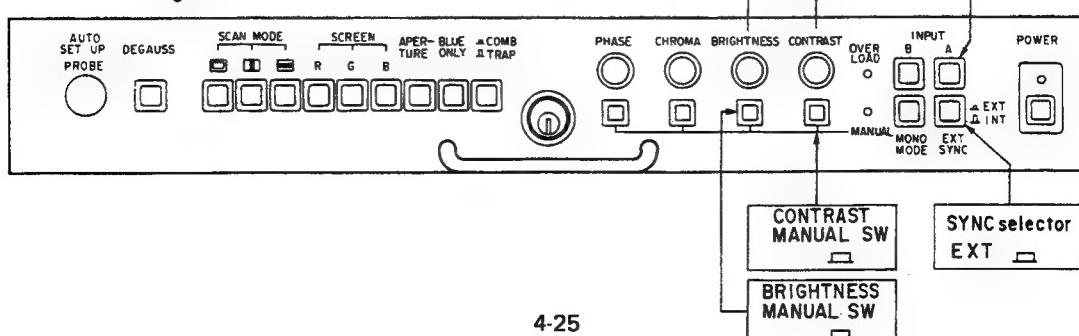


Fig. 4-4

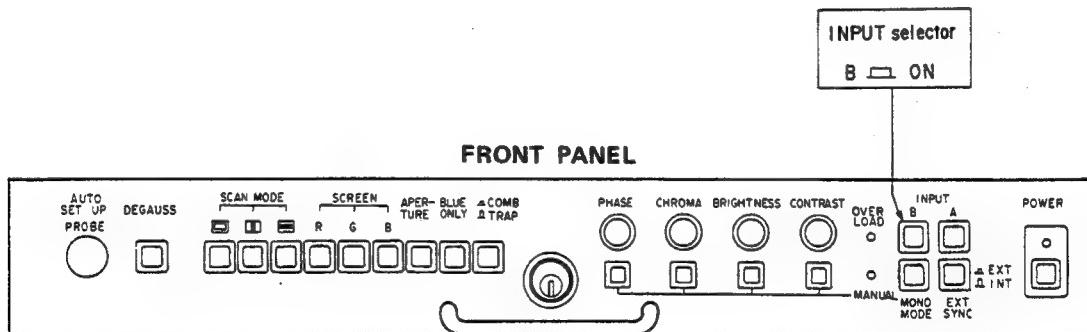
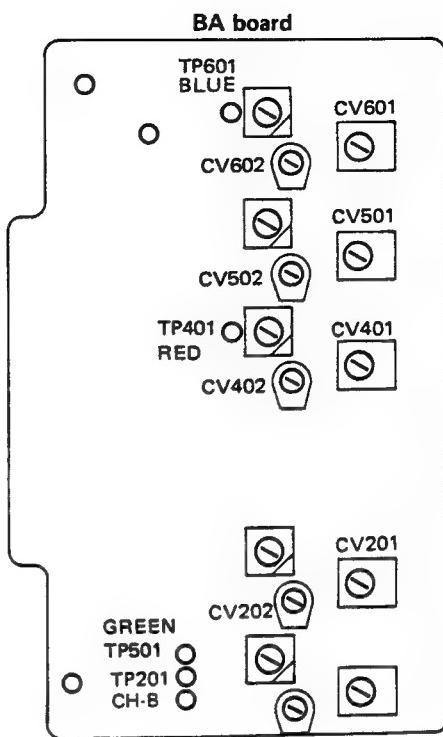
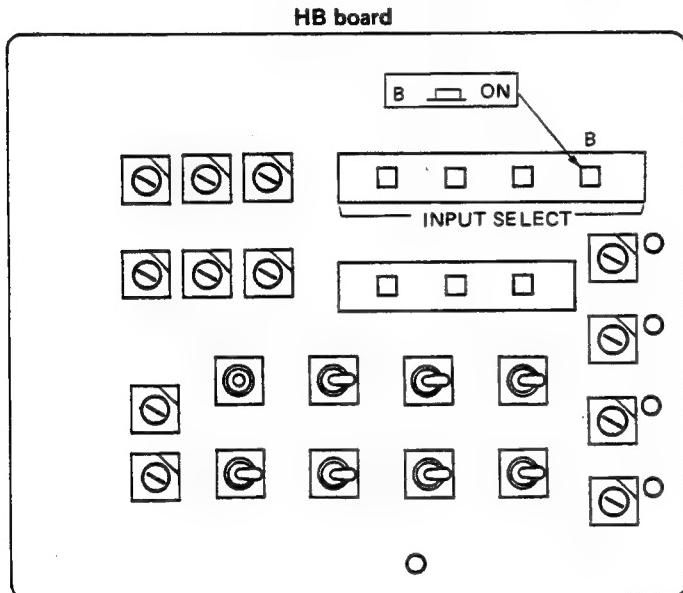


FRONT PANEL

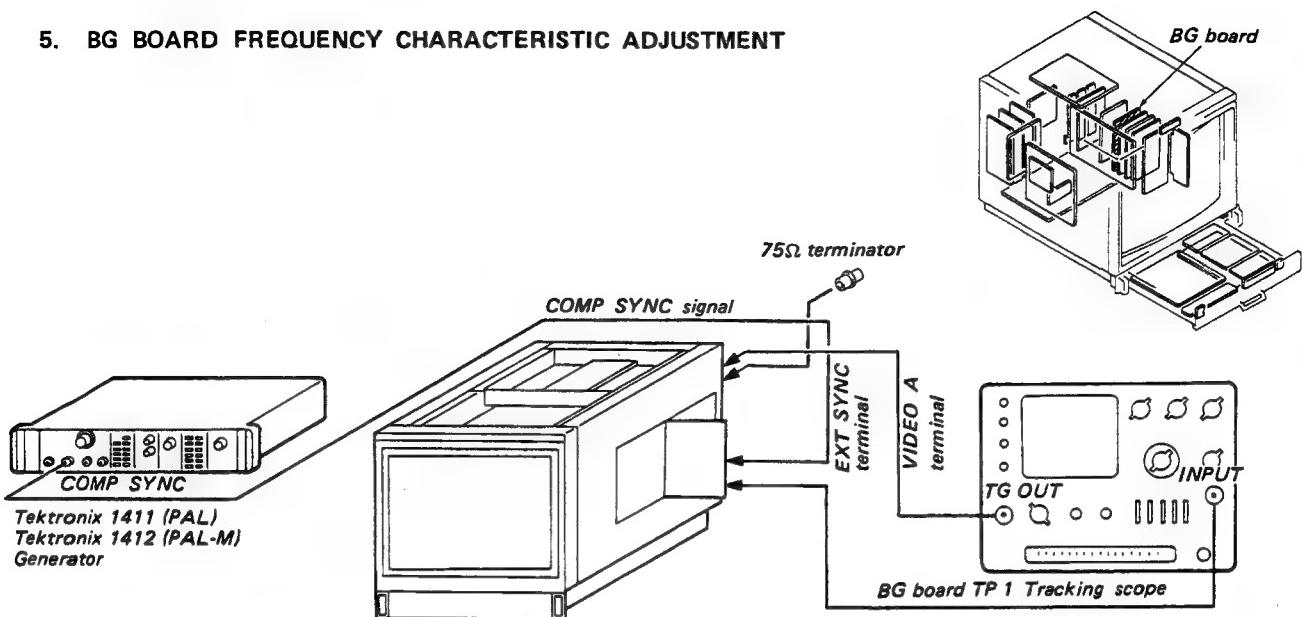


5. In the same way, perform the adjustment for B CH, under the following conditions.

INPUT	INPUT selector (FRONT PANEL (A))	INPUT SELECT buttons (SUB CONTROL PANEL)	TP (BA board)	CV (BA board)
B	B	B	TP201	CV201, 202
R/R-Y	B	RGB	TP401	CV401, 402
G/Y/TEST	B	RGB	TP501	CV501, 502
B/B-Y	B	RGB	TP601	CV601, 602



5. BG BOARD FREQUENCY CHARACTERISTIC ADJUSTMENT



1. Complete the connections as shown in Fig. 5-1.
2. Adjust RV1, CV2 and CV3 of the BG board so that the output waveform becomes flat in a range of 0 to 10MHz as shown in Fig. 5-2. (within 0 ± 0.5 dB)

*Waveform movement by RV1, CV2, CV3

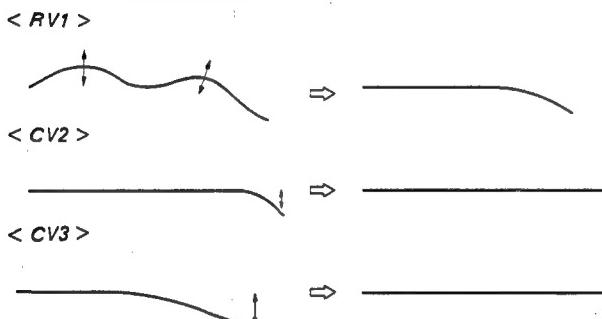


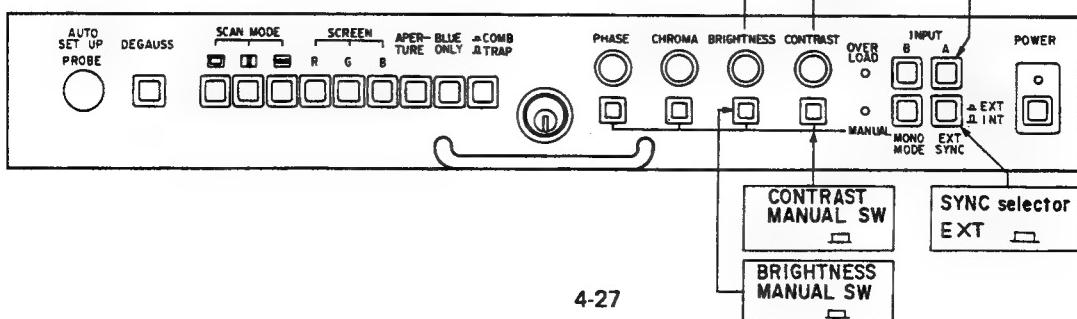
Fig. 5-2

3. Adjust with RV2 (BG board) to the position in which the APT (Fig. 5-3.) begins to become effective.



Fig. 5-3

FRONT PANEL



6. COMPONENT INPUT LEVEL ADJUSTMENT

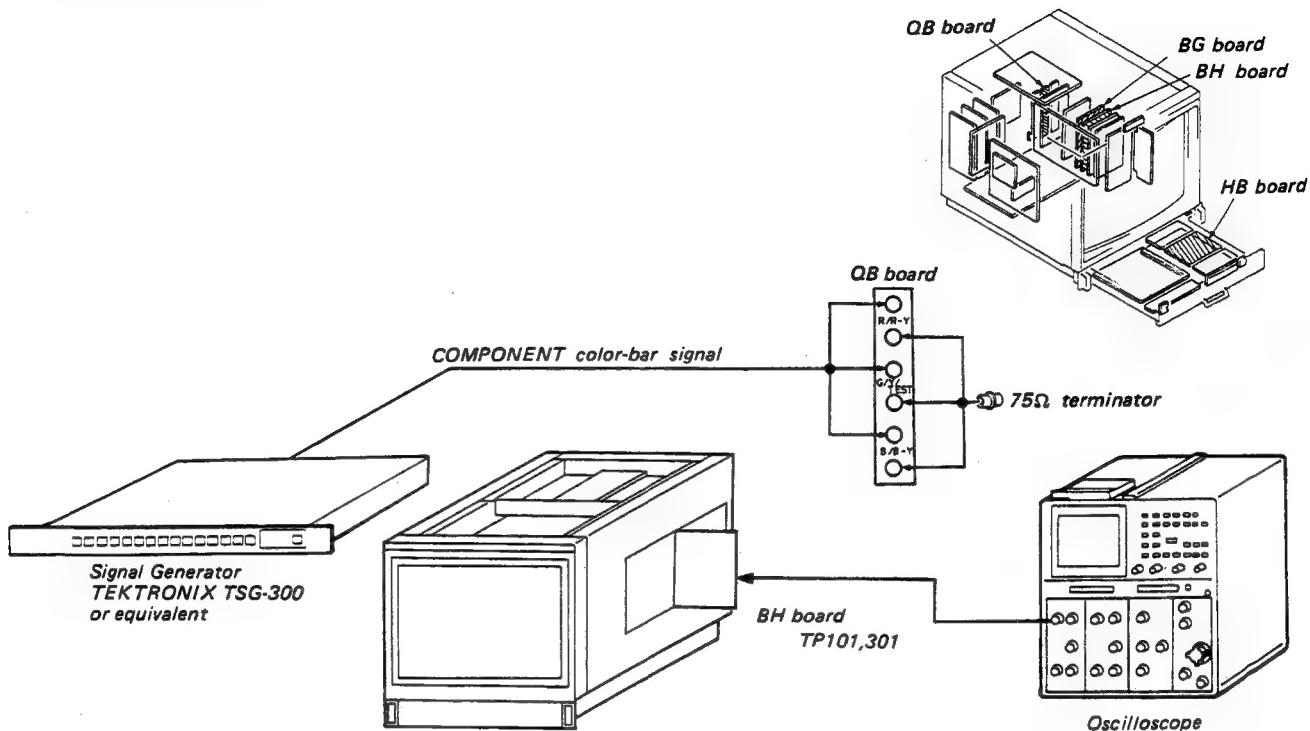


Fig. 6-1

1. Complete the connections as shown in Fig. 6-1.
 - INPUT selector B (FRONT PANEL (R))
 - INPUT SELECT buttons (RIGHT SIDE DRAWER) (HB board) COMPONENT
2. Connect an oscilloscope to the TP-101 of BH board.
3. Adjust RV21 of BG board so that the output waveform becomes flat. (Fig. 6-2)
4. Connect an oscilloscope to the TP301 of BH board.
5. Adjust RV22 of BG board so that the input waveform becomes flat. (Fig. 6-3)



Fig. 6-2

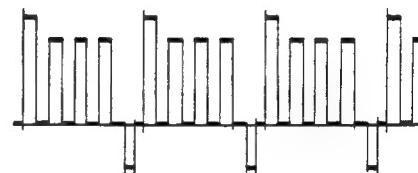
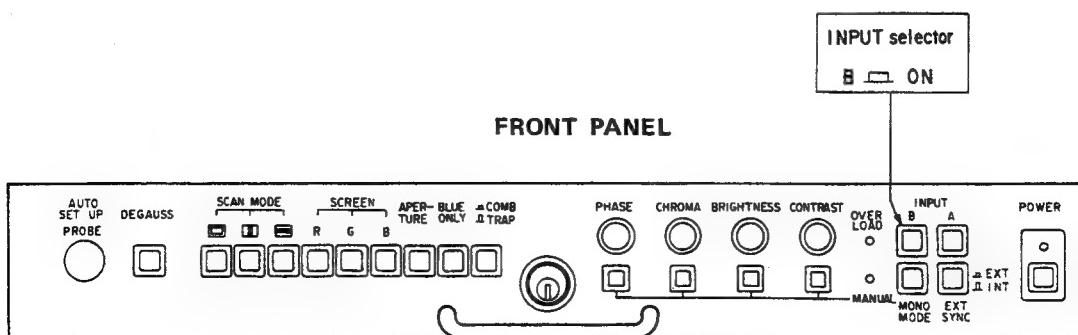
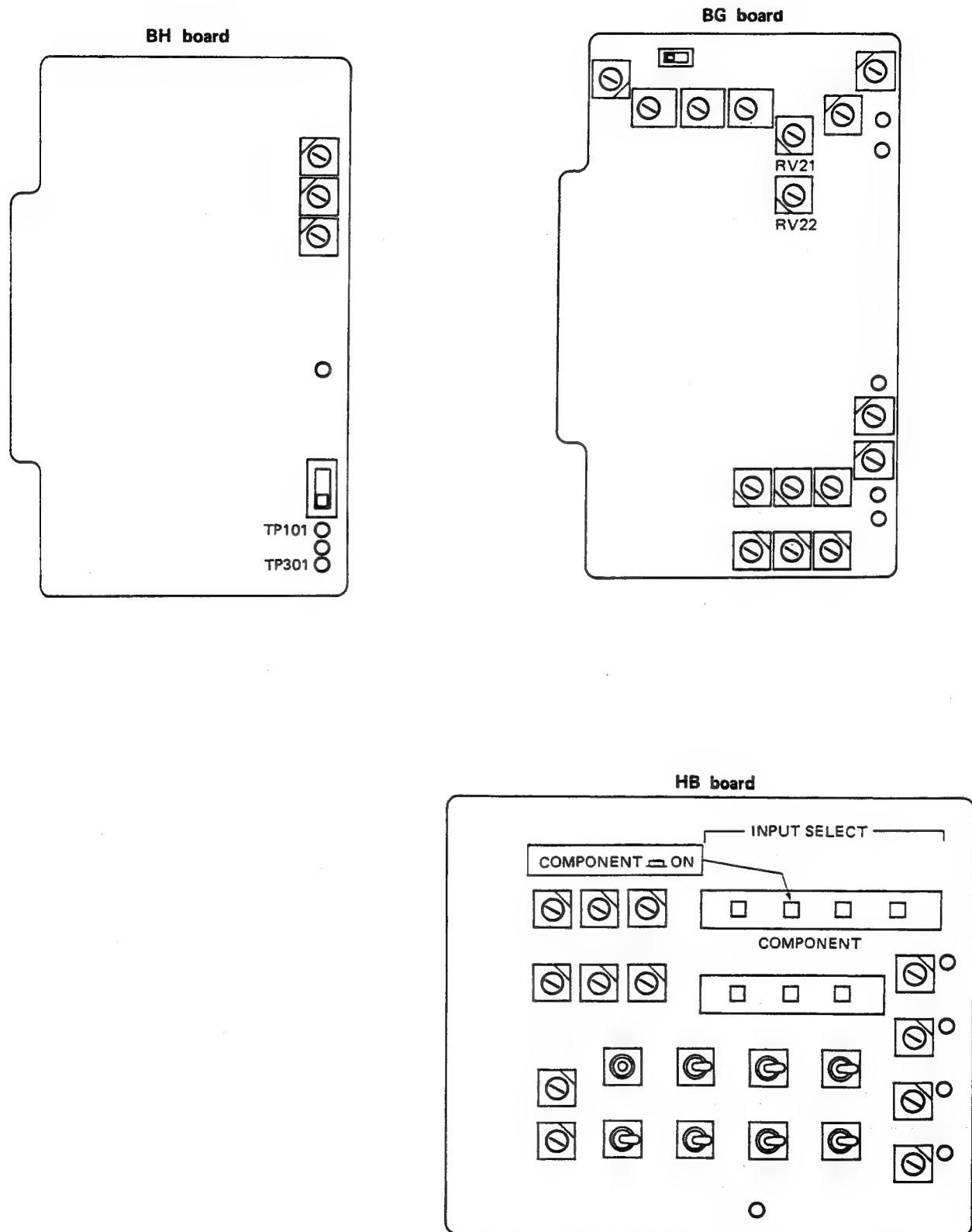
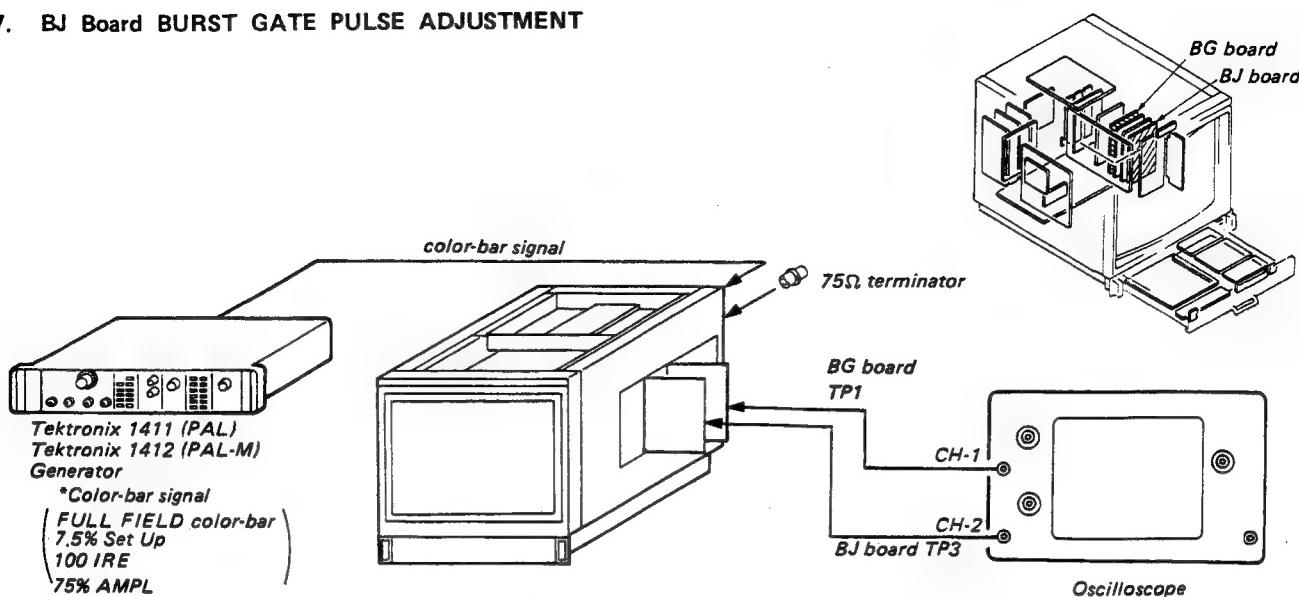


Fig. 6-3

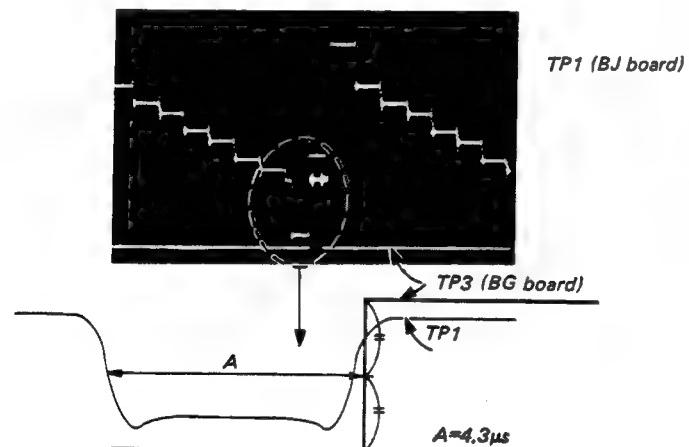




7. BJ Board BURST GATE PULSE ADJUSTMENT



1. Input a color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope (CH-1 probe) to the TP1 of BG board and connect an oscilloscope (CH-2 probe) to the TP3 of BJ board.
3. Adjust RV8 of BJ board so that the width A is $4.3\mu s$ as shown in Fig. 7-1.



* Adjust (A), from SYNC fall to B.G.P. (BURST GATE PULSE) rise, to $4.3\mu s$.

Fig. 7-1

4. Adjust RV4 of BJ board so that the burst gate pulse width is $3.9\mu s$ as shown in Fig. 7-2.

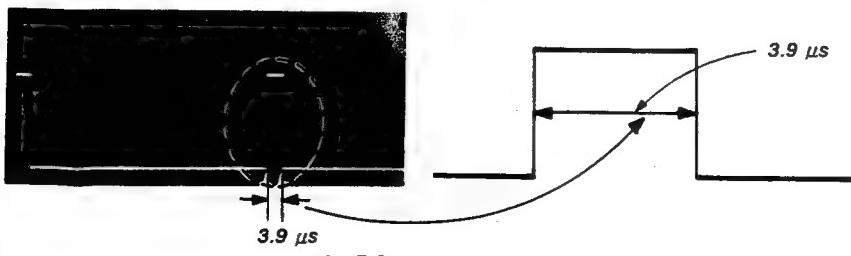
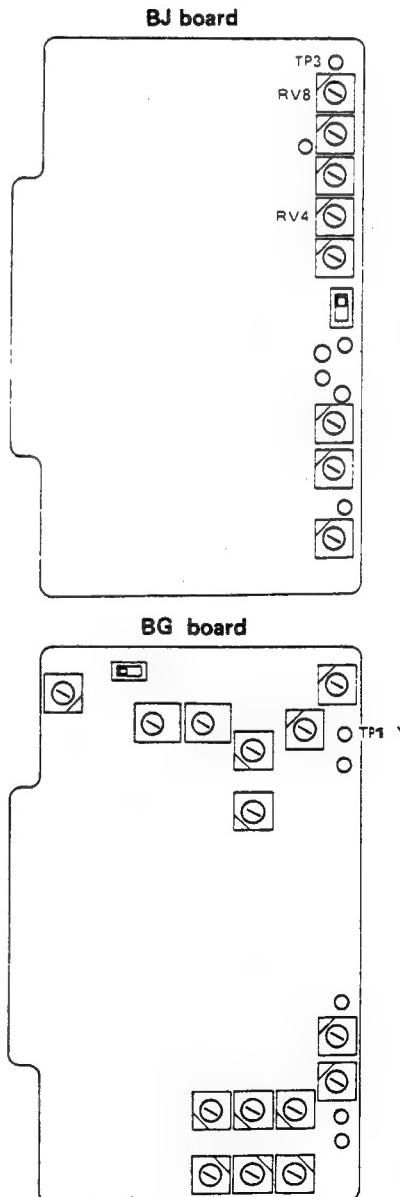
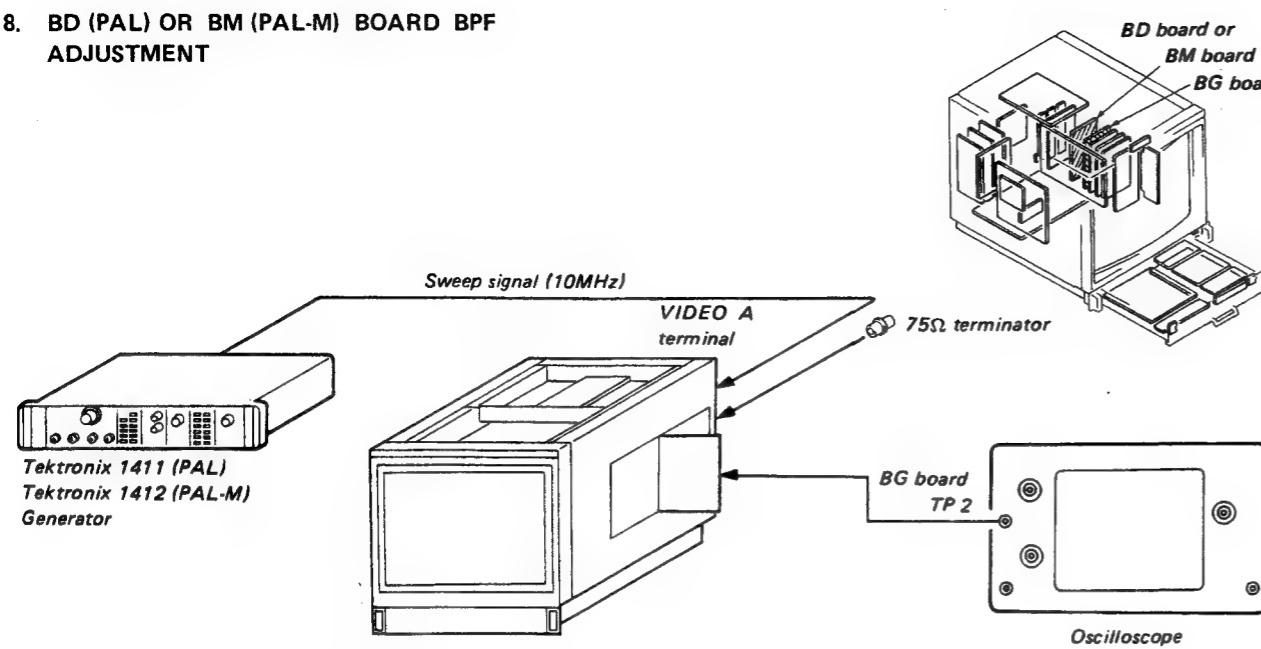


Fig. 7-2



**8. BD (PAL) OR BM (PAL-M) BOARD BPF
ADJUSTMENT**



- * Set the PAL switch of the BVM-2010P or 2010PM to the S position.
- 1. Input SWEEP signal (10MHz) to the VIDEO A terminal of the set.
- 2. Connect an oscilloscope to the TP2 on the BG board.
- 3. Make the V/div of oscilloscope into VARIABLE, and match the upper section of waveform to 7 div as shown in Fig. 8-1.

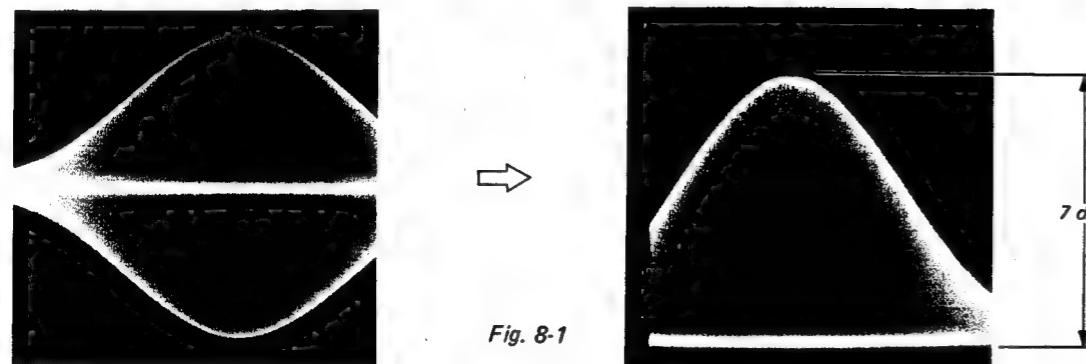


Fig. 8-1

- 4. Adjust L3 on the BD board so that A is equal to B as shown in Fig. 8-2.

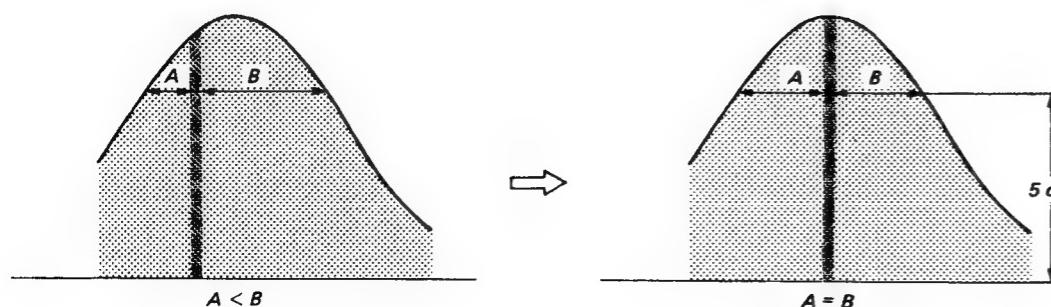
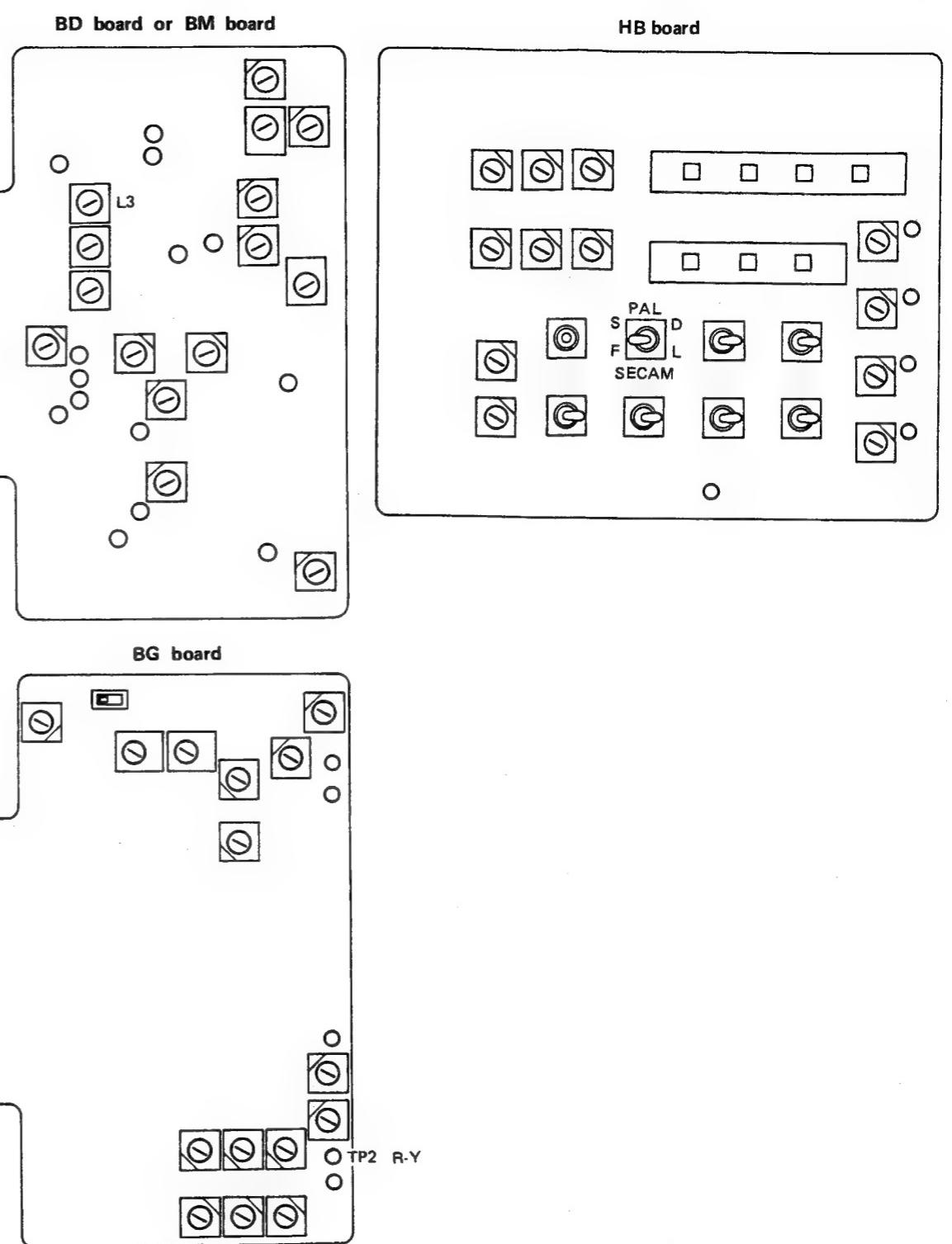


Fig. 8-2



9. BD (PAL) OR BM (PAL-M) BOARD PHASE SHIFT
ADJUSTMENT

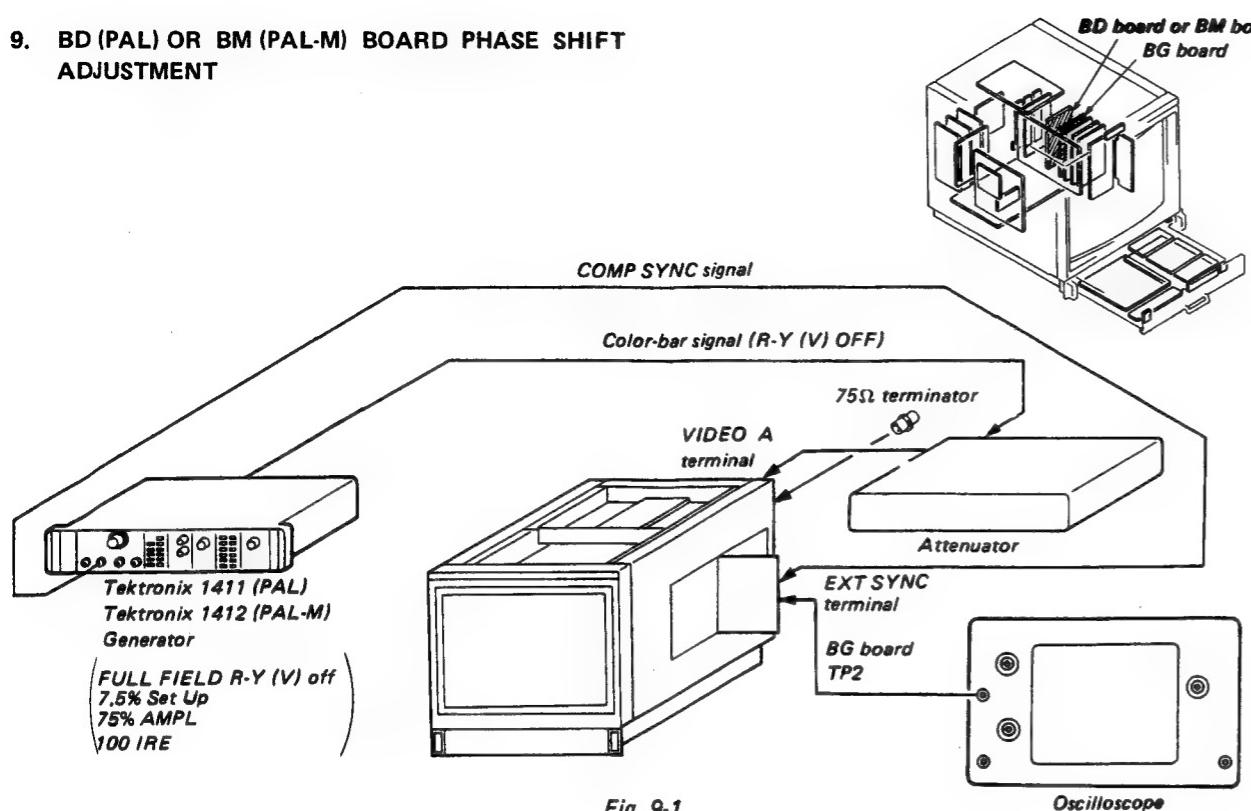
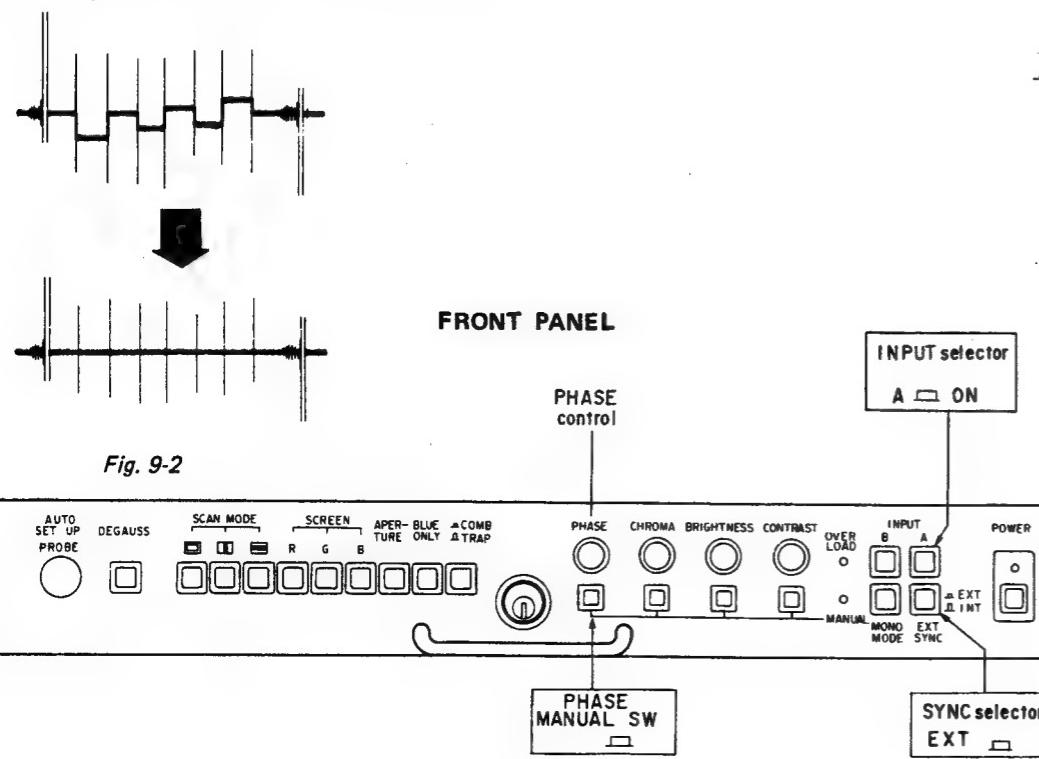
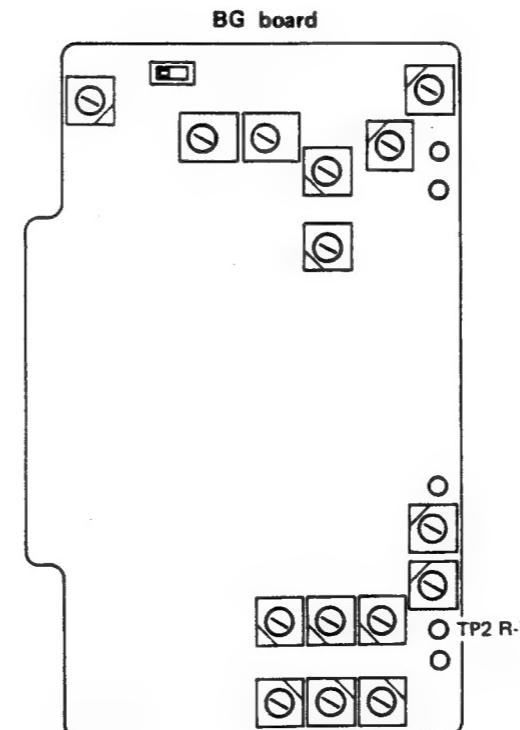
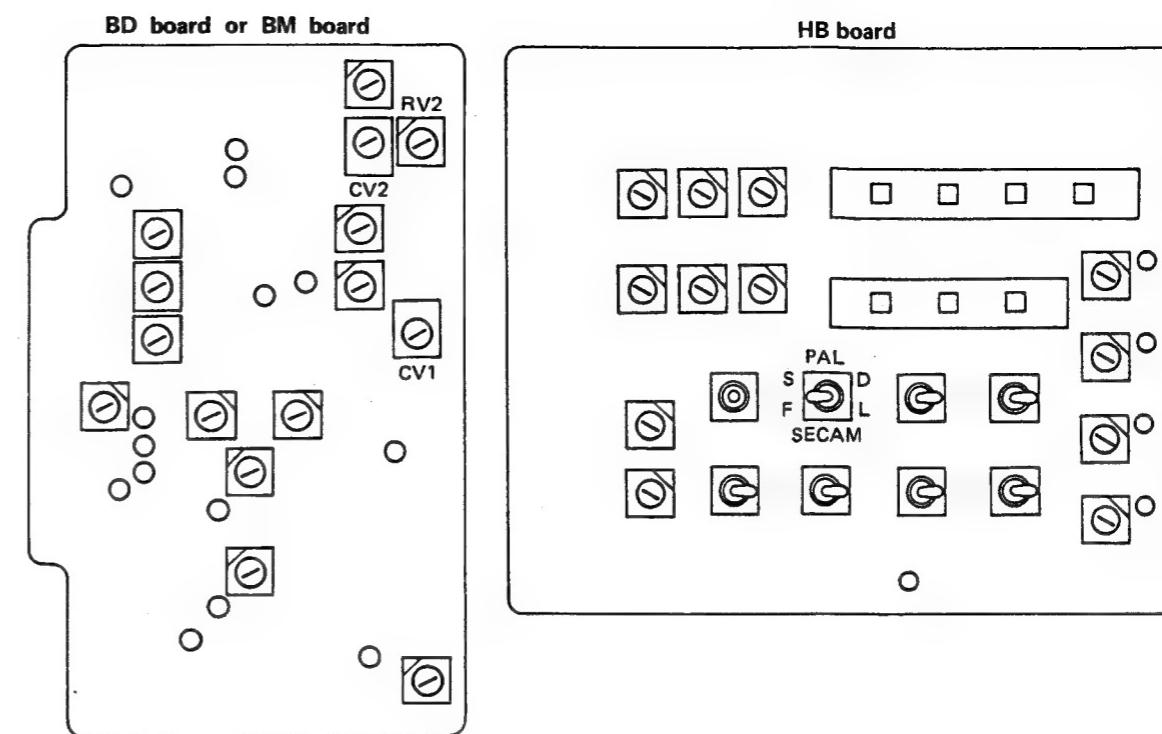


Fig. 9-1

- * Set the PAL switch of the BVM-2010P or 2010PM to the S position and RV2, CV1, CV2 on the BD or BM board to mechanical midposition.
- 1. Complete the connection as shown in Fig. 9-1.
 - INPUT selector (FRONT PANEL (R)) ... A ()
 - SYNC selector (FRONT PANEL (R)) ... EXT ()
- 2. Connect an oscilloscope to the TP2 on the BG board.
- 3. Make the waveform flat with the PHASE control of front panel (R) as shown in Fig. 9-2.
- 4. Attenuate the signal by 10dB by using attenuator.
- 5. Adjust RV2 on the BD or BM board so that the output waveform becomes flat as shown in Fig. 9-2.
- 6. Restore the attenuator to 0dB.
- 7. Repeat the steps 3 to 5.

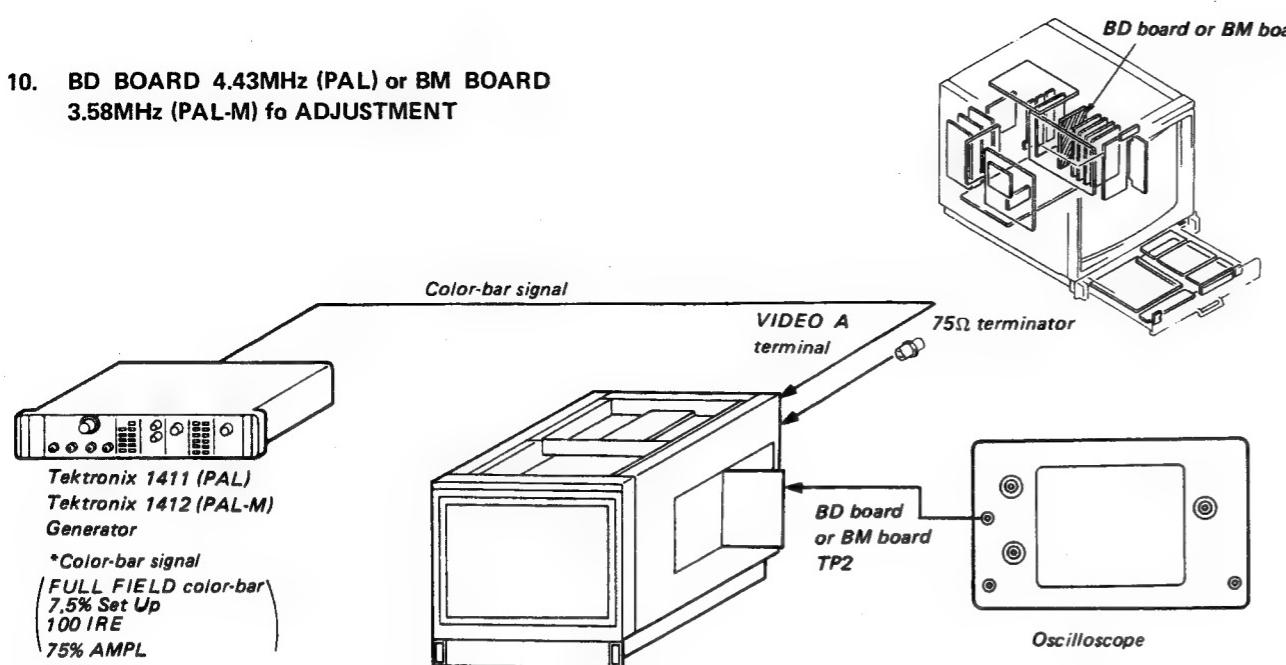


4-33

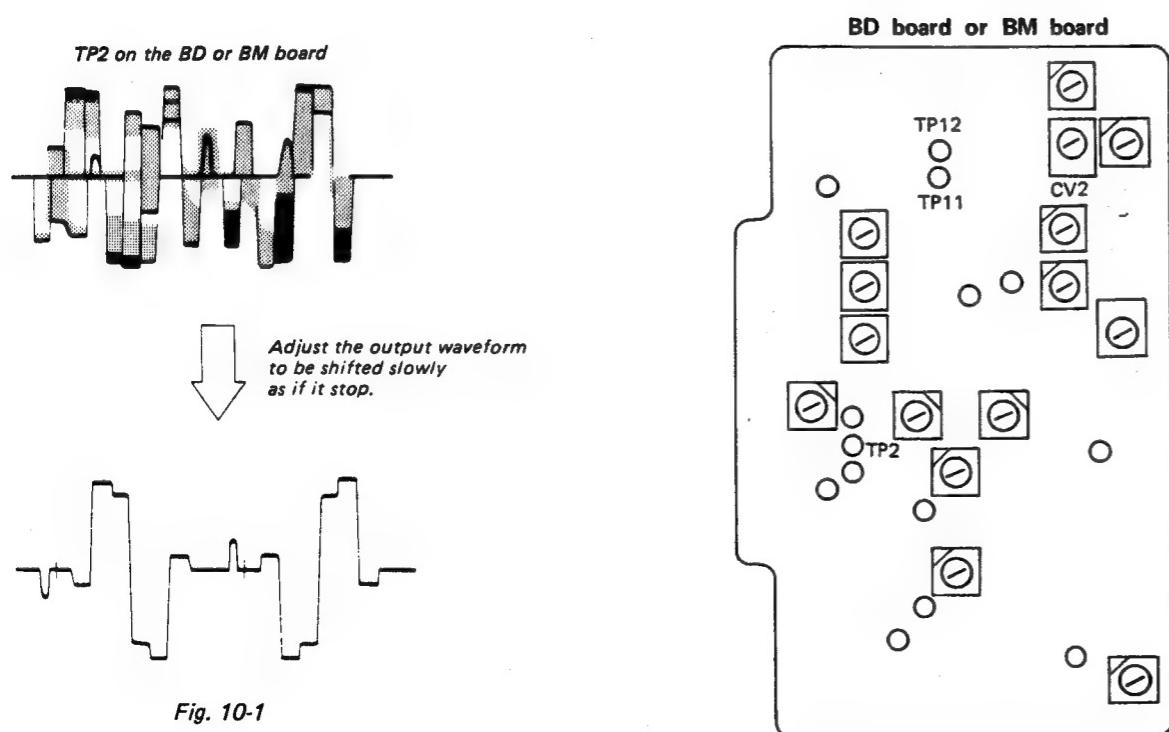


4-34

**10. BD BOARD 4.43MHz (PAL) or BM BOARD
3.58MHz (PAL-M) to ADJUSTMENT**



1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP2 of BD or BM board.
3. Short-circuit between TP11, 12 of BD or BM board with a jumper wire.
4. Adjust CV2 of BD or BM board so that the output waveform is shifted slowly as shown in Fig. 10-1.
5. Turn off the power of this monitor, and disconnect TP11, 12 of BD or BM board.



**11. BD BOARD (PAL) or BM BOARD (PAL-M)
COLOR DIFFERENCE PHASE ADJUSTMENT**

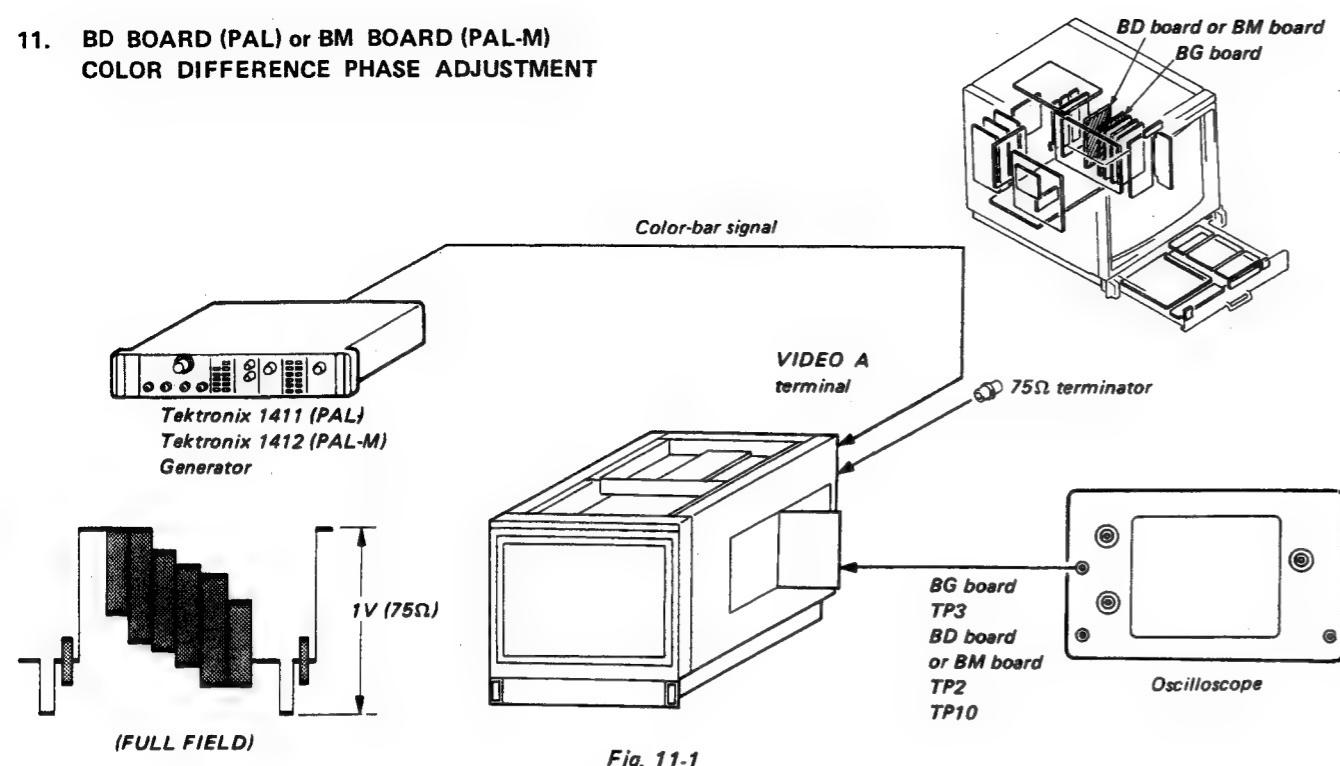


Fig. 11-1

1. Complete the connections as shown in Fig. 11-1.
2. Turn on the power of this monitor. Set the INPUT switch to the A position, the SYNC switch to the INT position, and the PAL switch to the S position.

B-Y System Adjustment

3. Connect the oscilloscope probe to TP3 on the BG board, and turn off the U (B-Y) signal of the signal generator.
4. Set the oscilloscope sensitivity to 20mV/DIV, and adjust RV8 on the BD or BM board so that the output waveform is flat. (See Fig. 11-2.)

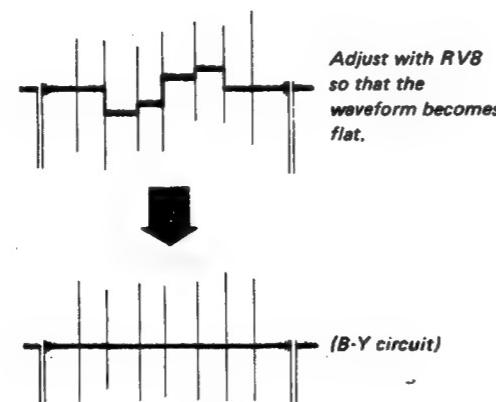


Fig. 11-2

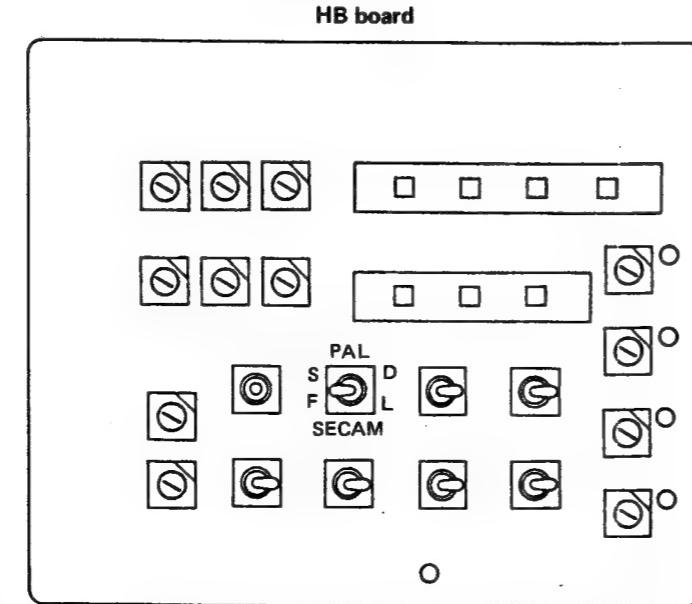
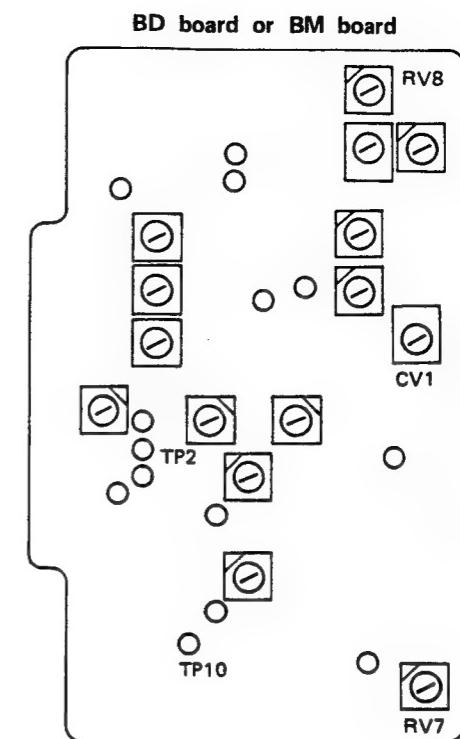


Fig. 11-3

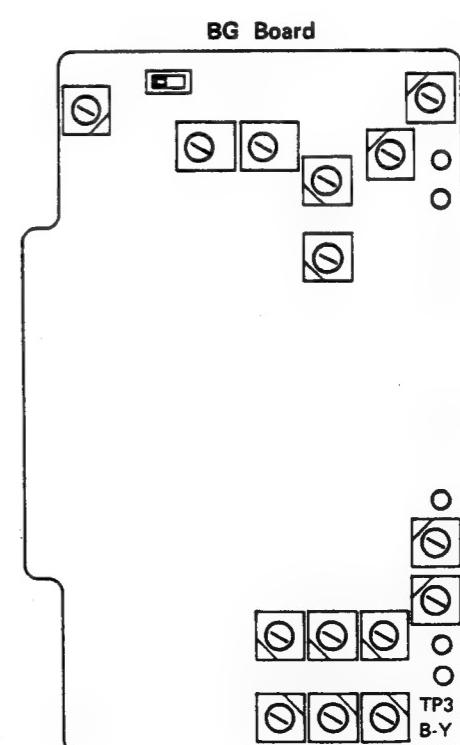
Quad Adjustment

5. Connect the oscilloscope probe to TP2 on the BD or BM board. Turn on the U signal of the signal generator, and turn off the V (R-Y) signal. Then adjust CV1 on the BD or BM board so that the output waveform is flat. (See Fig. 11-3.)
6. Repeat the steps 3 to 6.



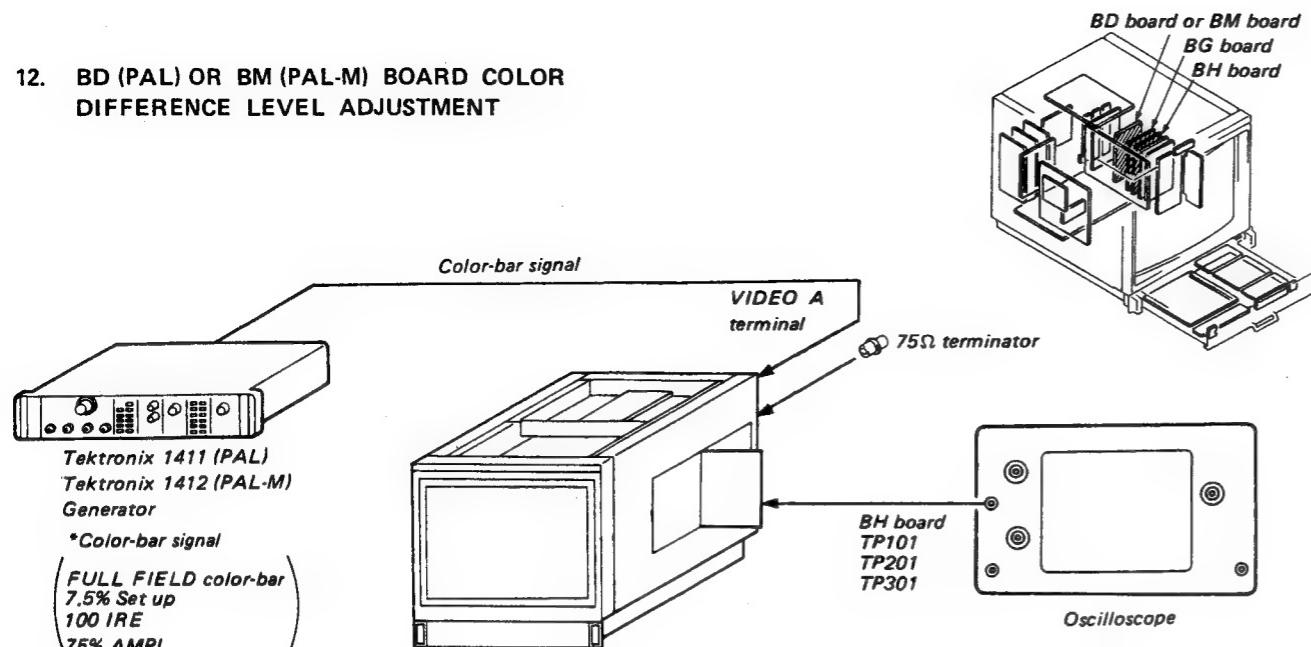
PAL-D Phase Adjustment

7. Set the PAL switch to the D position and turn on the V signal of the signal generator, and turn off U signal.
8. Connect the oscilloscope probe to TP10 on the BD or BM board.
9. Adjust RV7 on the BD board so that the output waveform is flat. (See Fig. 11-2.)
10. Finally, perform the adjustments of 3 and 4 by directly mounting the BD or BM board to the set, without using the extension board.



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12. BD (PAL) OR BM (PAL-M) BOARD COLOR DIFFERENCE LEVEL ADJUSTMENT



- * Set the PAL switch of the BVM-2010P or 2010PM to the S position.
- 1. Input color-bar signal to the VIDEO A terminal of the set.
- 2. Connect an oscilloscope to the TP101 of BH board.
- 3. Adjust RV3 of BD or BM board so that the levels with * is flat as shown in Fig. 12-1.

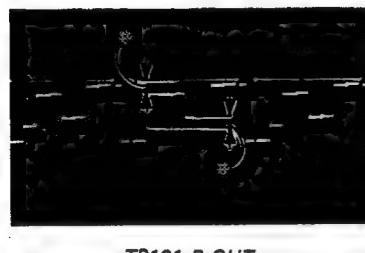
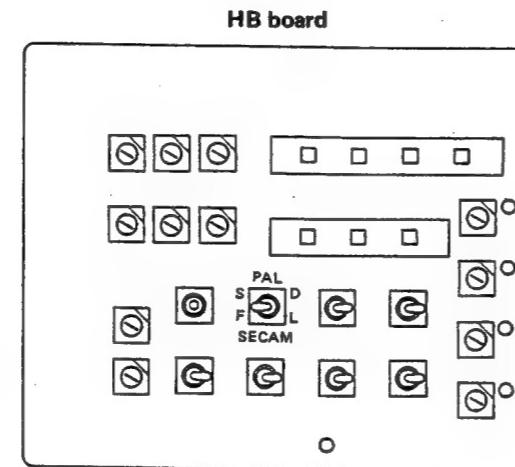


Fig. 12-1

Adjust the levels with * to be flat respectively using RV3 of BD or BM board.



- 4. Connect an oscilloscope to the TP301 of BH board.
- 5. Adjust RV4 of BD or BM board so that the output waveform as shown in Fig. 12-2.

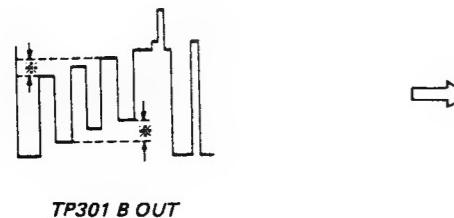


Fig. 12-2

- 6. Connect an oscilloscope to the TP201 of BH board.
- 7. Adjust RV4 and RV5 of BG board so that the INPUT waveform becomes flat as shown in Fig. 12-3.

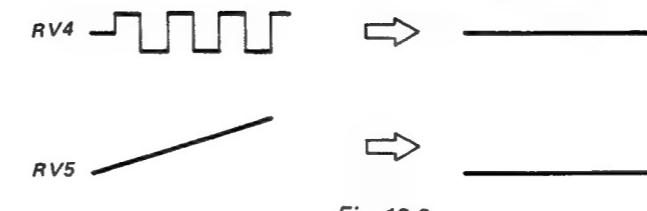
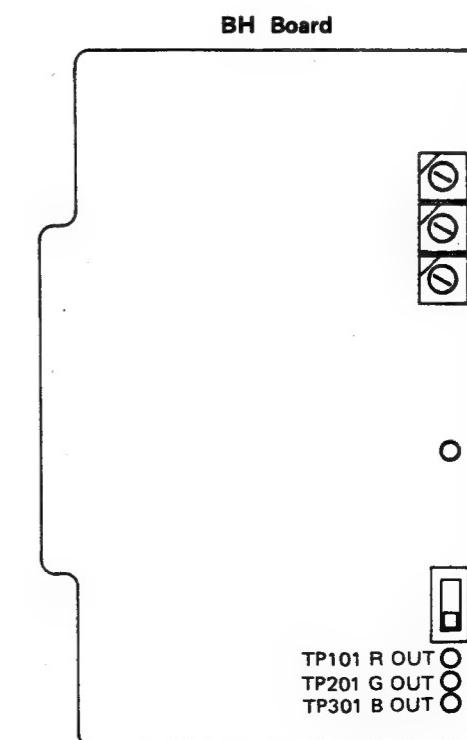
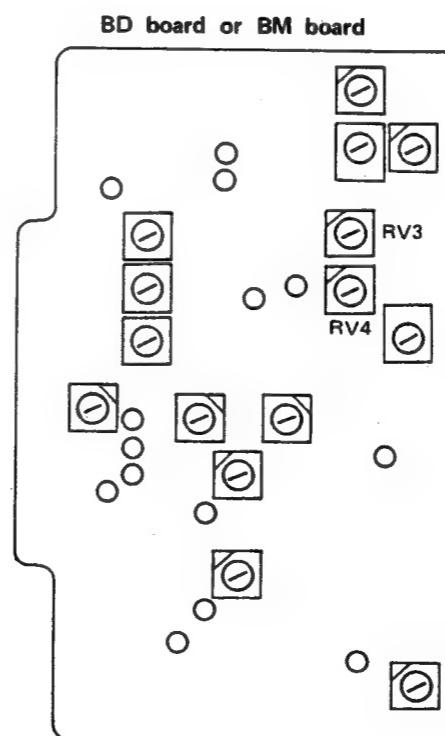
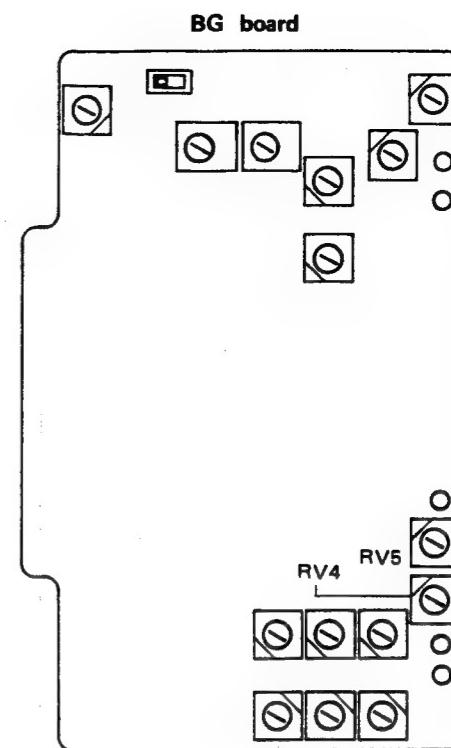


Fig. 12-3



**13. BD BOARD (PAL) OR BM BOARD (PAL-M)
PAL-D GAIN AND CCD BIAS ADJUSTMENT**

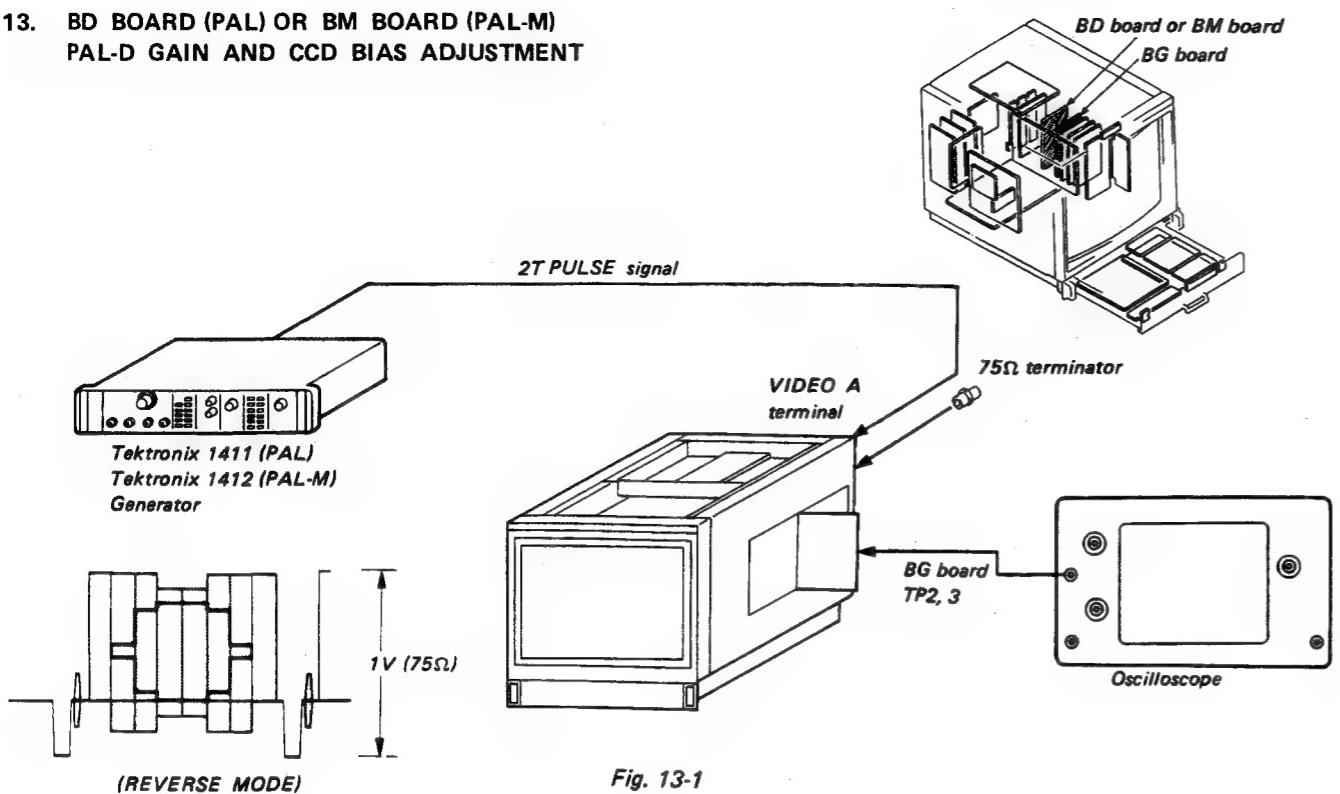
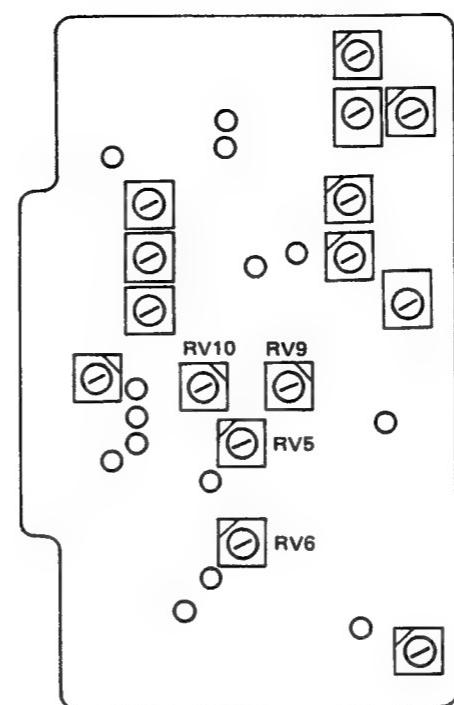
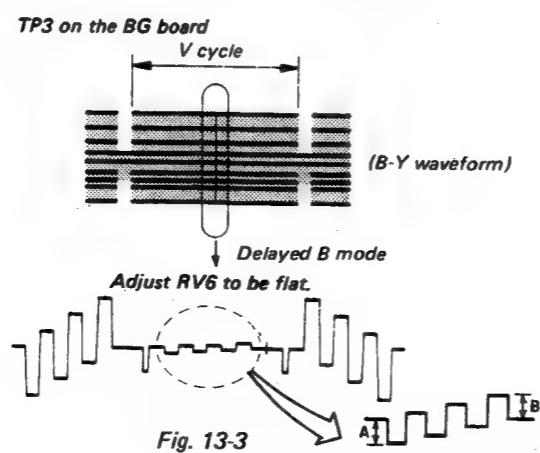
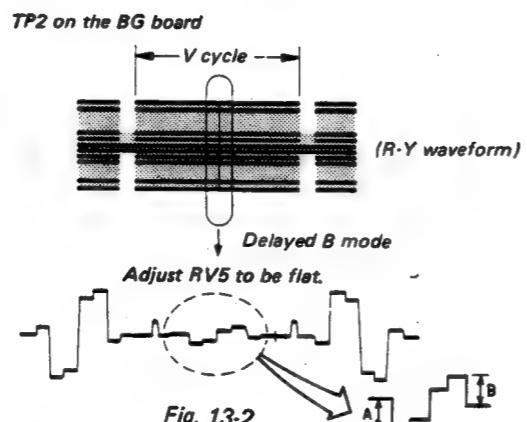


Fig. 13-1

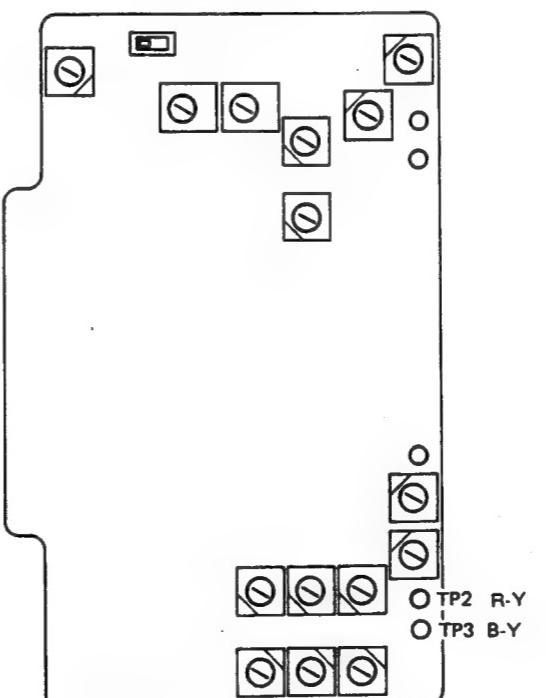
BD board or BM board



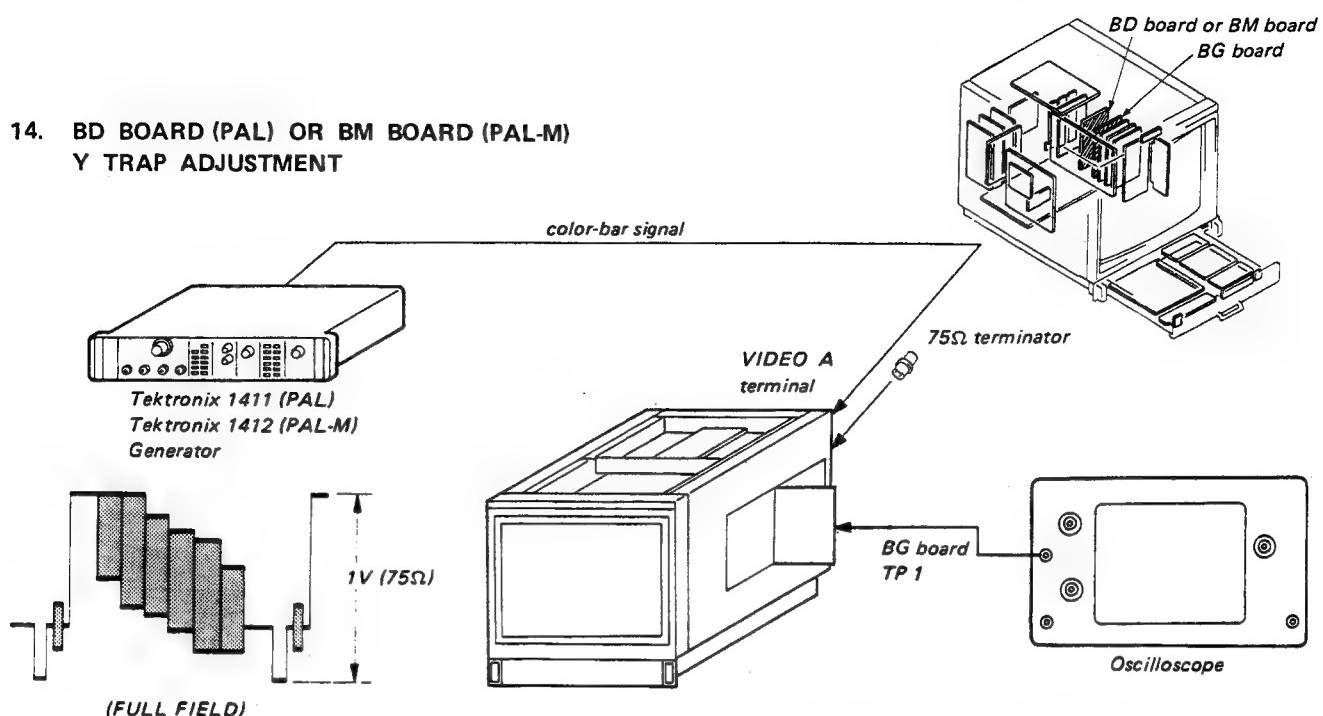
- * Set the PAL switch of BVM-2010P or 2010PM to the D position.
- 1. Complete the connections as shown in Fig. 13-1. Turn on the power of this monitor. Set the INPUT switch to the A position, and the SYNC switch to the INT position.
- 2. Connect the oscilloscope probe to TP2 on the BG board.
- 3. Turn RV5 and RV6 on the BD or BM board fully clockwise.
- 4. By observing the waveform shown in Fig. 13-2, adjust RV9 on the BD or BM board so that it becomes A = B.
- 5. Adjust RV5 on the BD or BM board so that the waveform shown in Fig. 13-2 becomes flat.
- 6. Connect the probe of the oscilloscope to TP3 on the BG board and observe the section shown in Fig. 13-3.
- 7. Adjust RV10 on the BD or BM board so that the waveform of the oscilloscope becomes A = B.
- 8. Adjust RV6 on the BD or BM board so that the waveform shown in Fig. 13-3 becomes flat.



BG board



**14. BD BOARD (PAL) OR BM BOARD (PAL-M)
Y TRAP ADJUSTMENT**



1. Input color-bar signal to VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP1 of BG board.
3. Adjust L1 of BD or BM board so that 4.43 MHz (PAL) or 3.58 MHz (PAL-M) subcarrier is minimum as shown in Fig. 14-1.

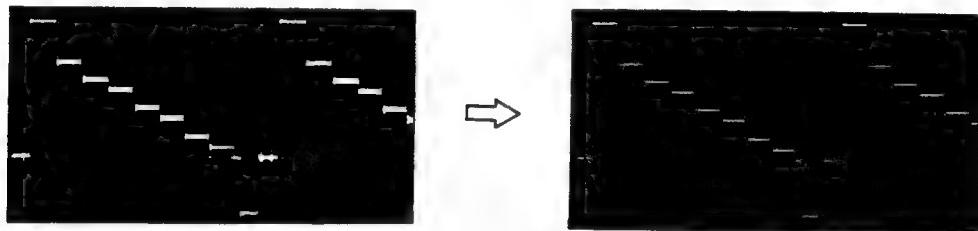
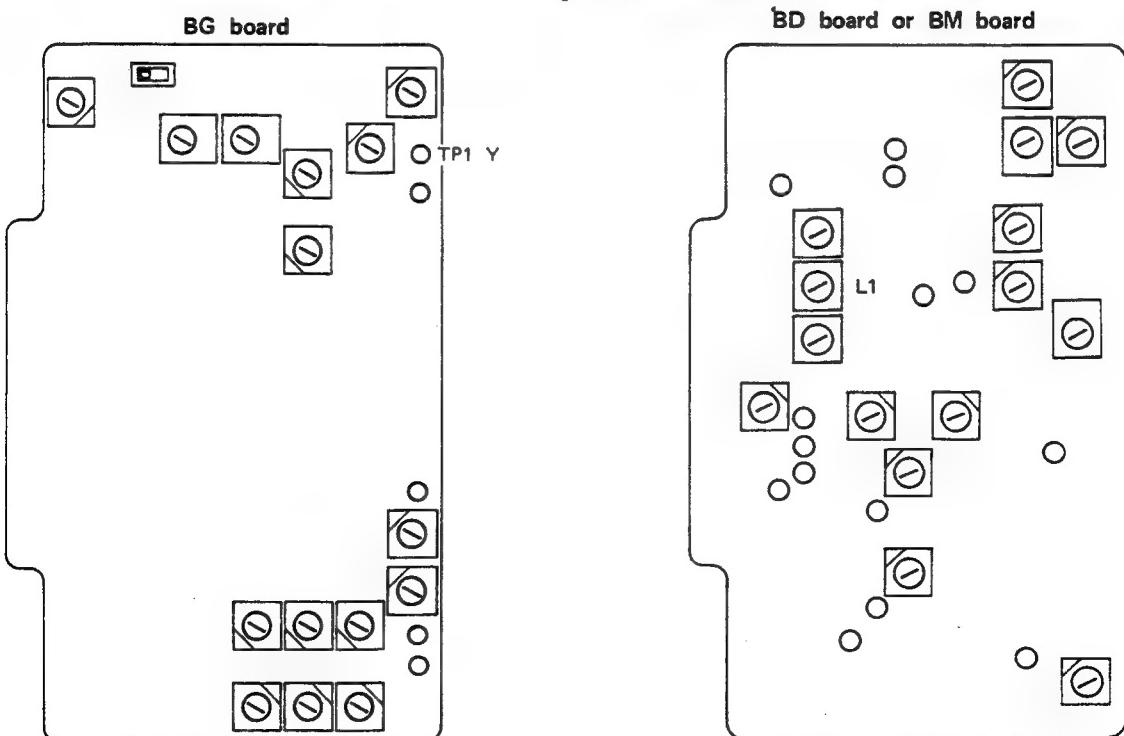
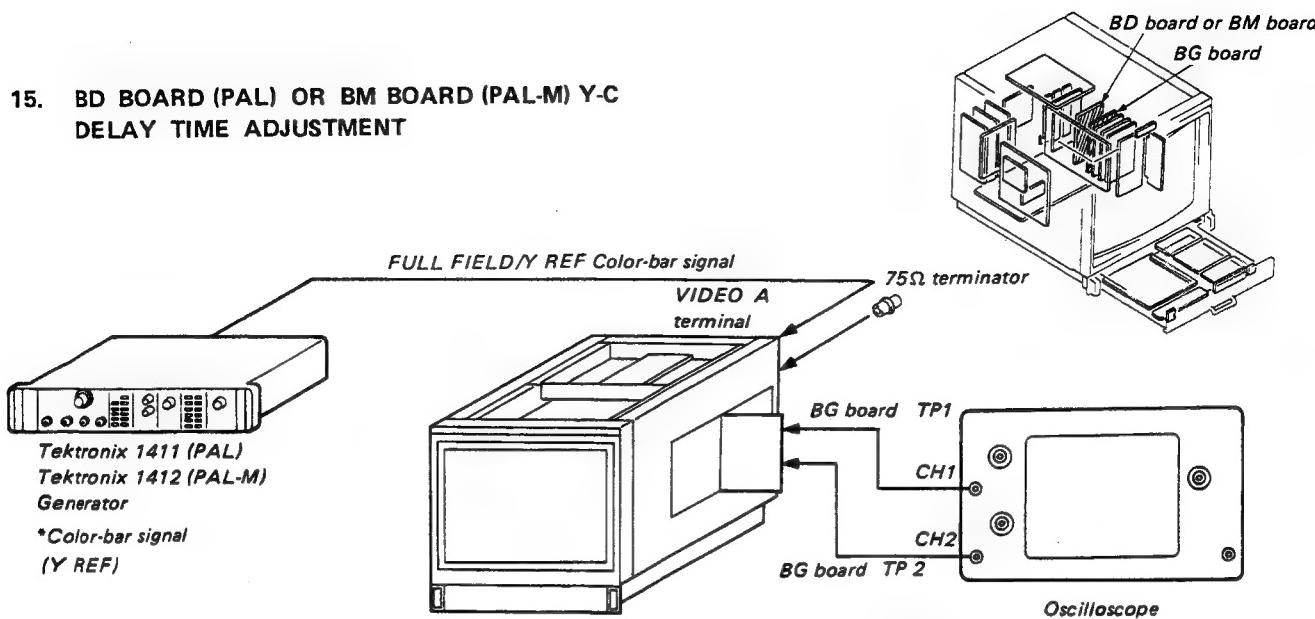


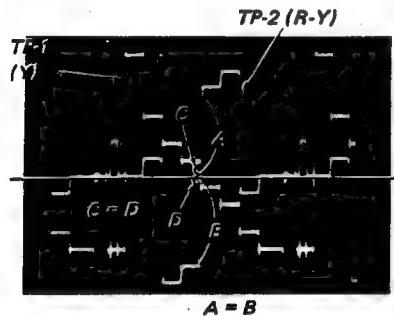
Fig. 14-1



**15. BD BOARD (PAL) OR BM BOARD (PAL-M) Y-C
DELAY TIME ADJUSTMENT**



- * Set the PAL switch of the BVM-2010P or 2010PM to the S position.
- 1. Input color-bar signal (FULL FIELD/Y REF) to the VIDEO A terminal of the set.
- 2. Connect an oscilloscope (CH-1 probe) to the TP1 of BG board and connect an oscilloscope (CH-2 probe) to the TP2 of BG board (VERT mode of the oscilloscope is CHOP).
- 3. Adjust RV1 of BD or BM board so that the output waveform as shown in Fig. 15-1.



$(A=B)$

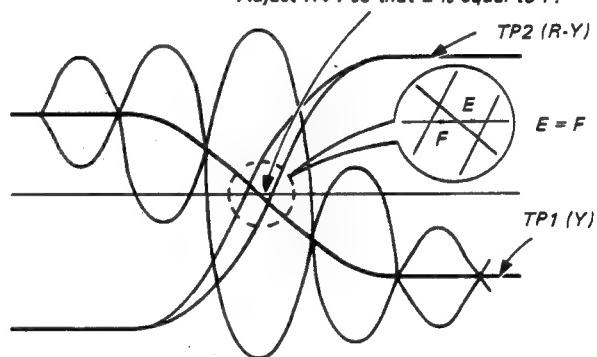
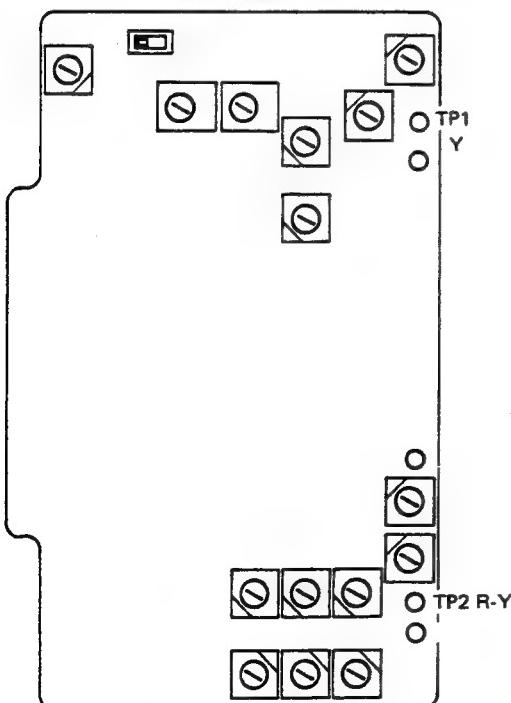
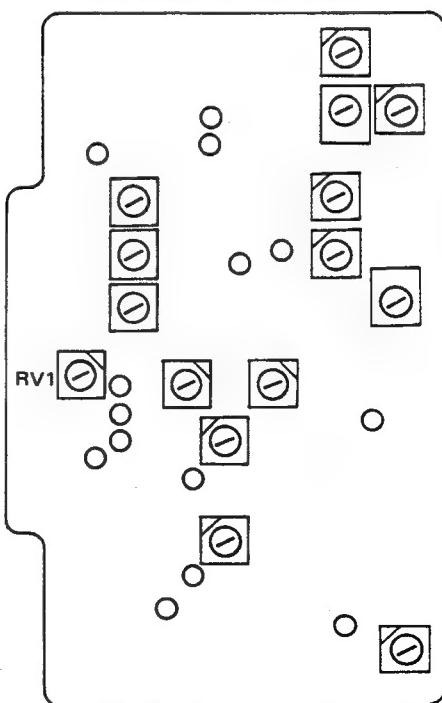


Fig. 15-1

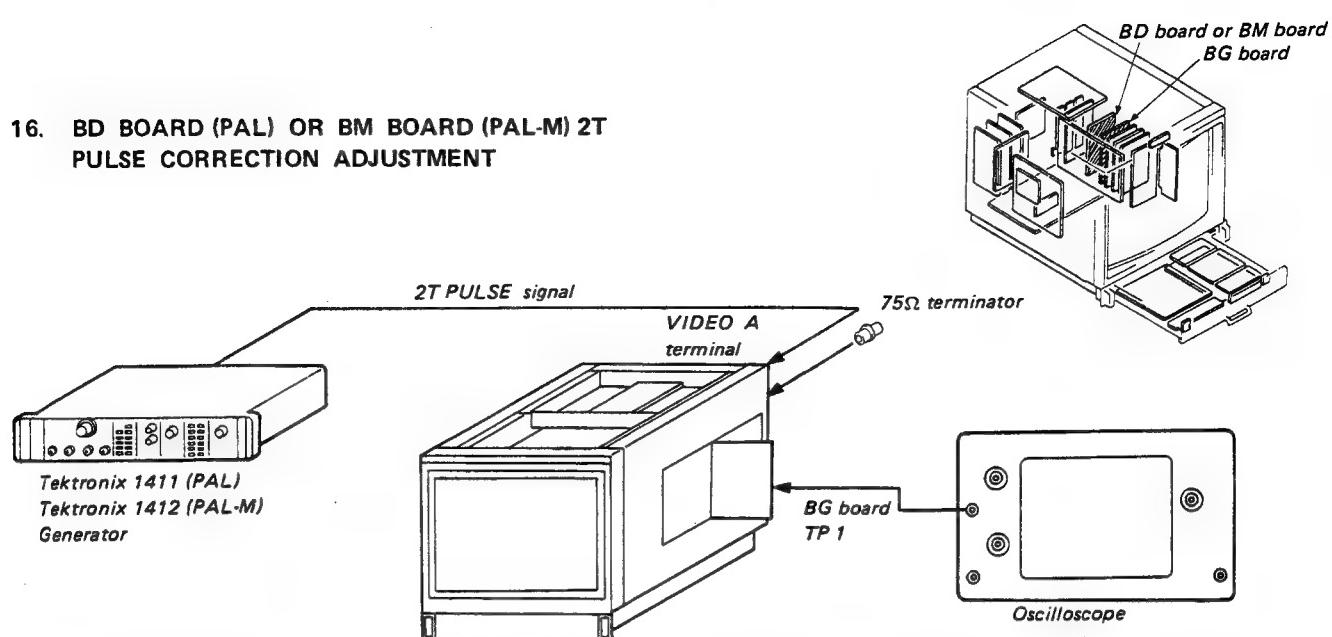
BG Board



BD board or BM board



16. BD BOARD (PAL) OR BM BOARD (PAL-M) 2T PULSE CORRECTION ADJUSTMENT



1. Input 2T pulse signal to VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP1 of BG board.
3. Adjust L2 of BD or BM board so that A is equal to B as shown in Fig. 16-1.
4. Change the input signal from 2T pulse to T pulse, and make sure the waveform balance is not lost extremely as shown in Fig. 16-1.

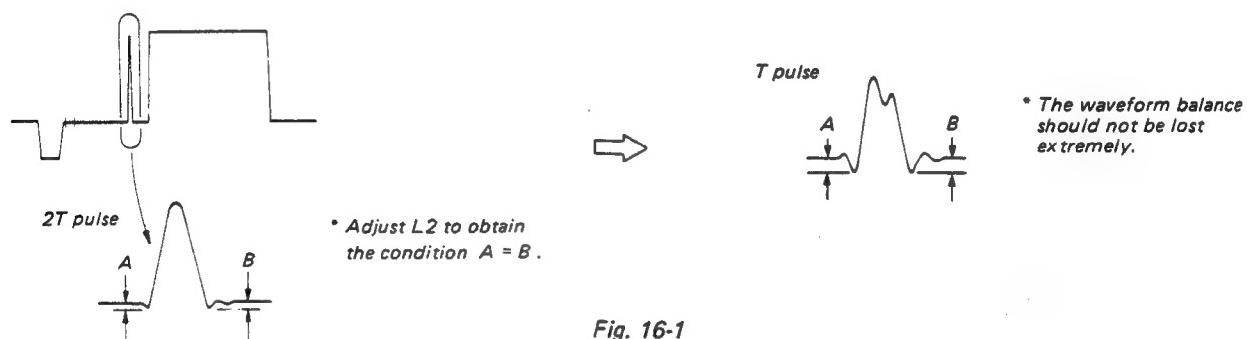
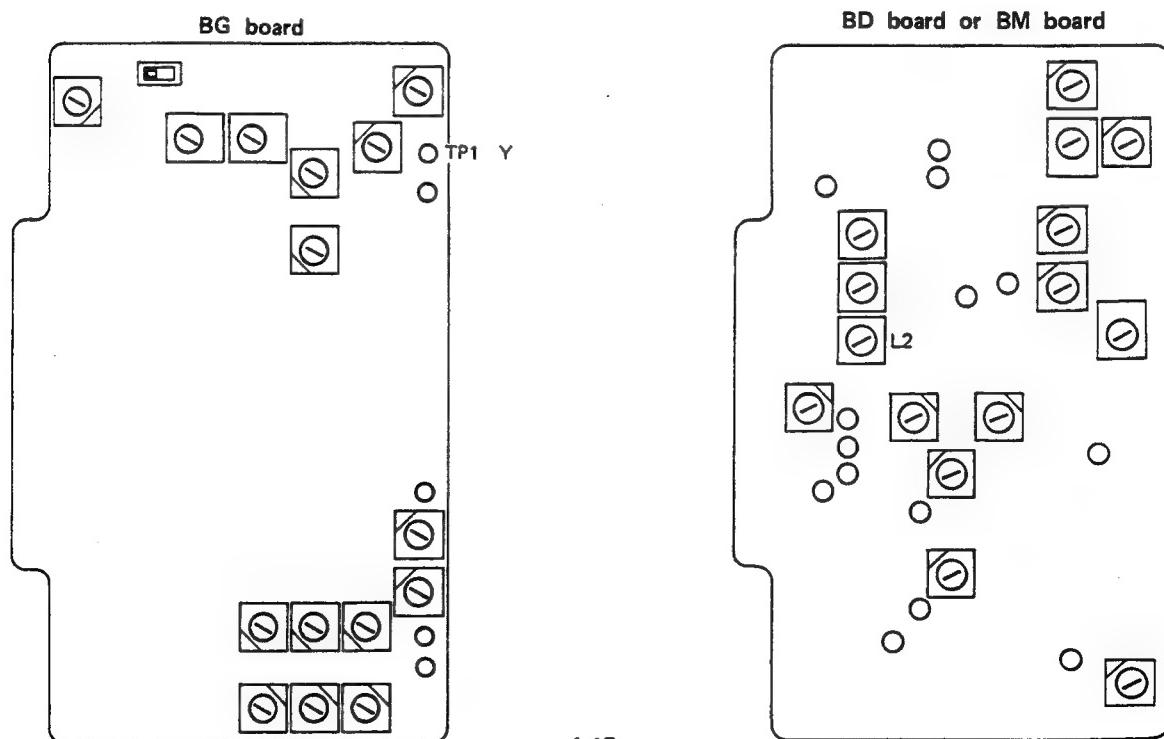
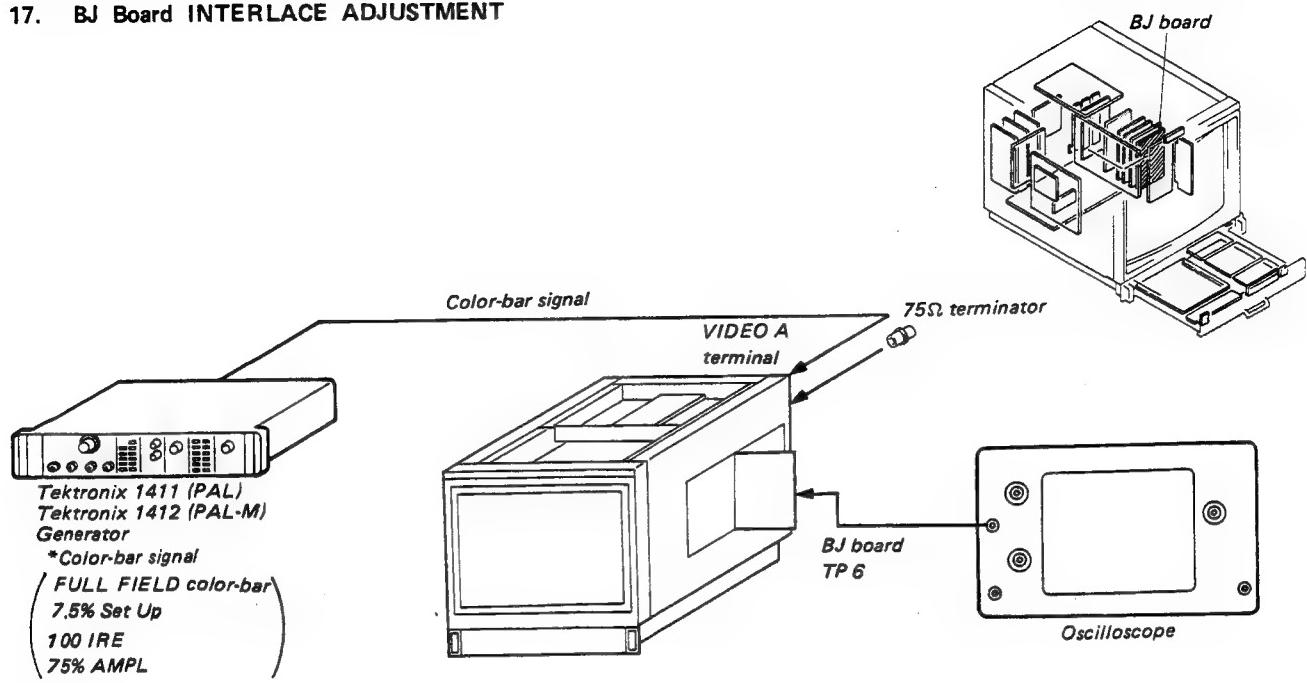


Fig. 16-1



17. BJ Board INTERLACE ADJUSTMENT



1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP6 on the BJ board.
3. Adjust RV6 to obtain the waveform on the oscilloscope as shown in Fig. 17-1.

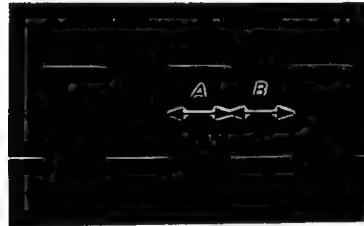
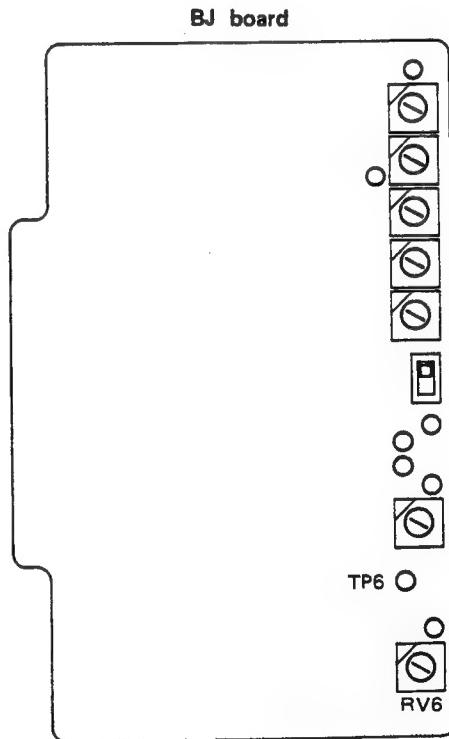
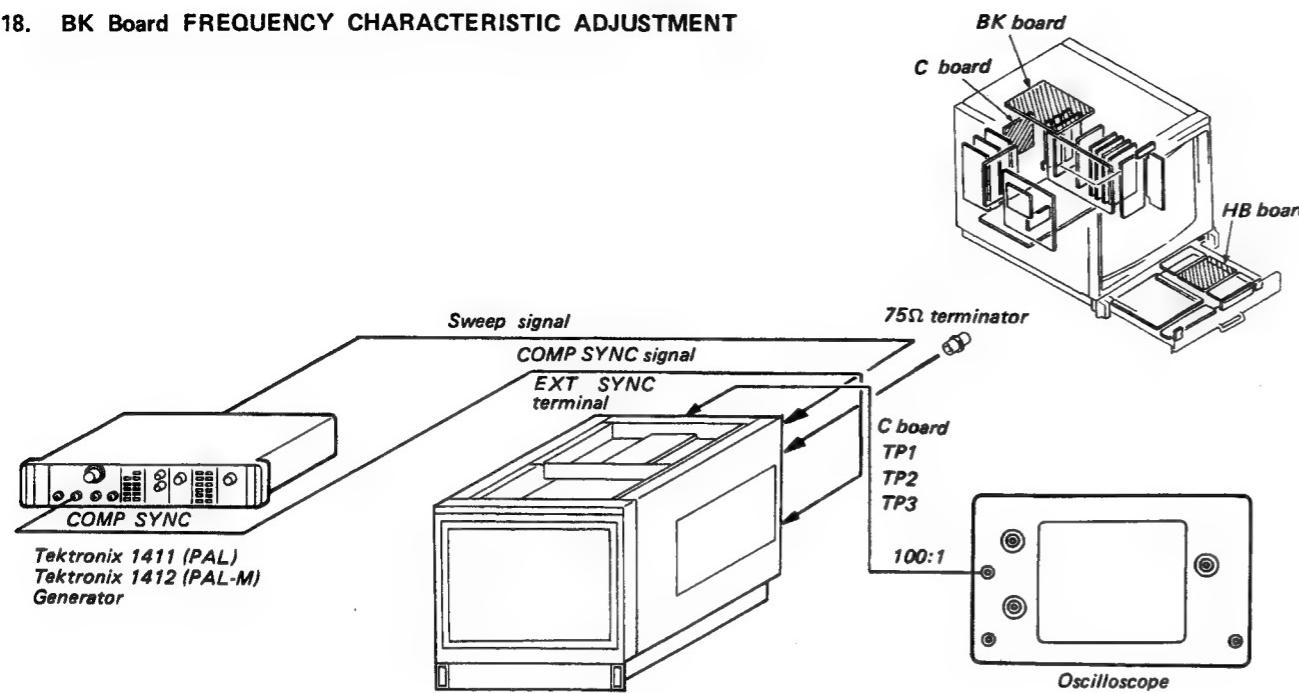


Fig. 17-1



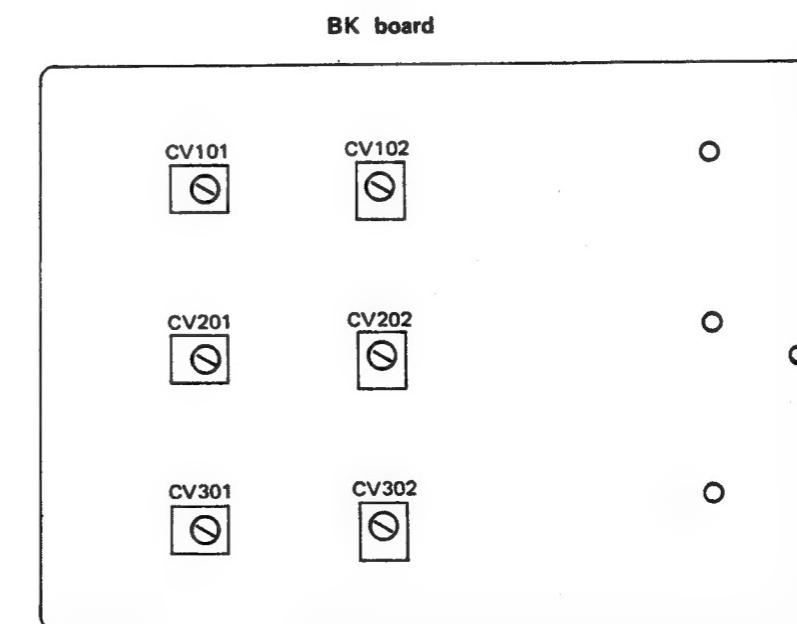
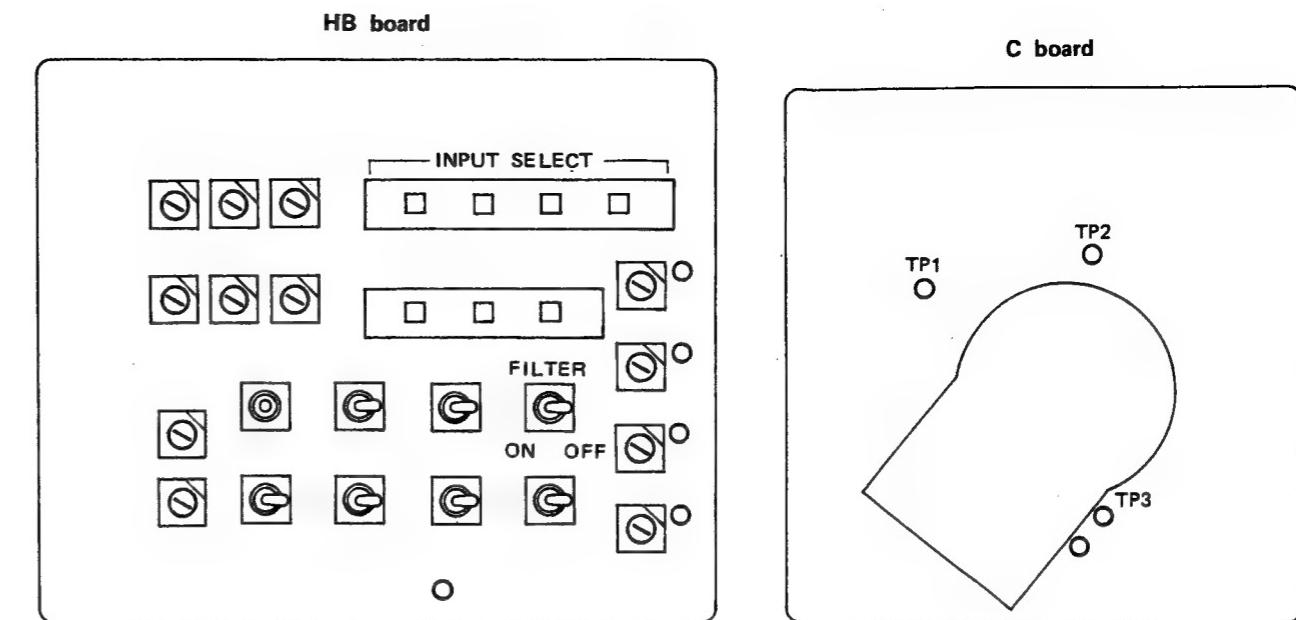
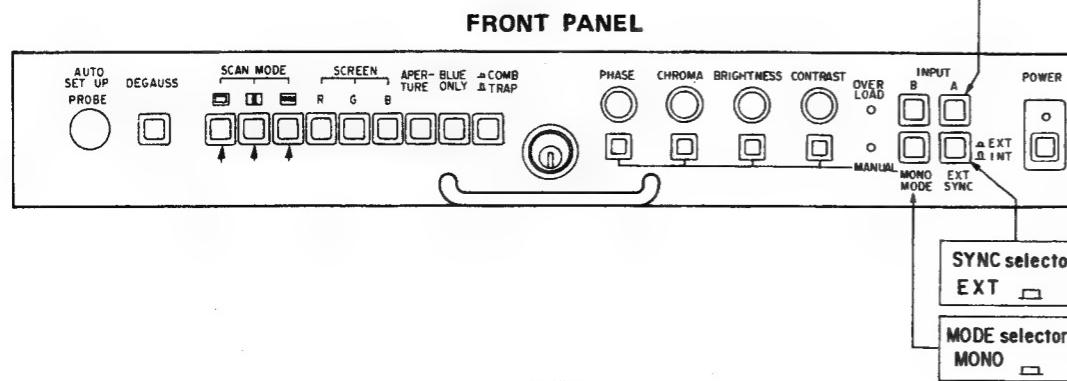
18. BK Board FREQUENCY CHARACTERISTIC ADJUSTMENT



1. Input SWEEP signal to VIDEO A terminal of the set, and input COMP SYNC signal to EXT SYNC terminal of the set.
2. • INPUT selector (FRONT PANEL) A (□)
• SYNC selector (FRONT PANEL) EXT (□)
• MODE selector (FRONT PANEL) MONO (□)
• FILTER SW. (HB board S8) OFF
3. Connect an oscilloscope to the TP1 on the C board.
*Probe: 100:1
4. Adjust CV101 and CV102 on the BK board so that output waveform becomes flat in a range of 0 to 10MHz as shown in Fig. 18-1.
5. Connect an oscilloscope to the TP2 on the C board.
6. Adjust CV201 and CV202 on the BK board so that output waveform becomes flat in a range of 0 to 10MHz as shown in Fig. 18-1.
7. Connect an oscilloscope to the TP3 on the C board.
8. Adjust CV301 and CV302 on the BK board so that output waveform becomes flat in a range of 0 to 10MHz as shown in Fig. 18-1.

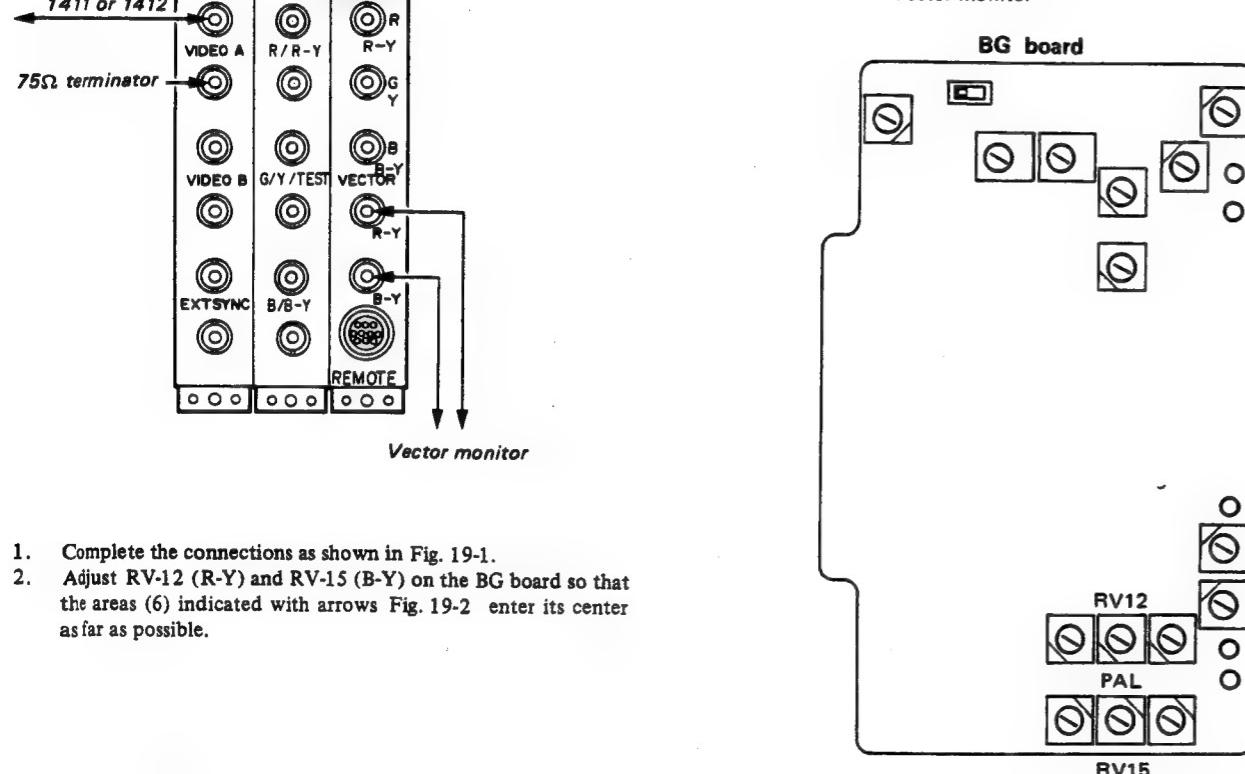
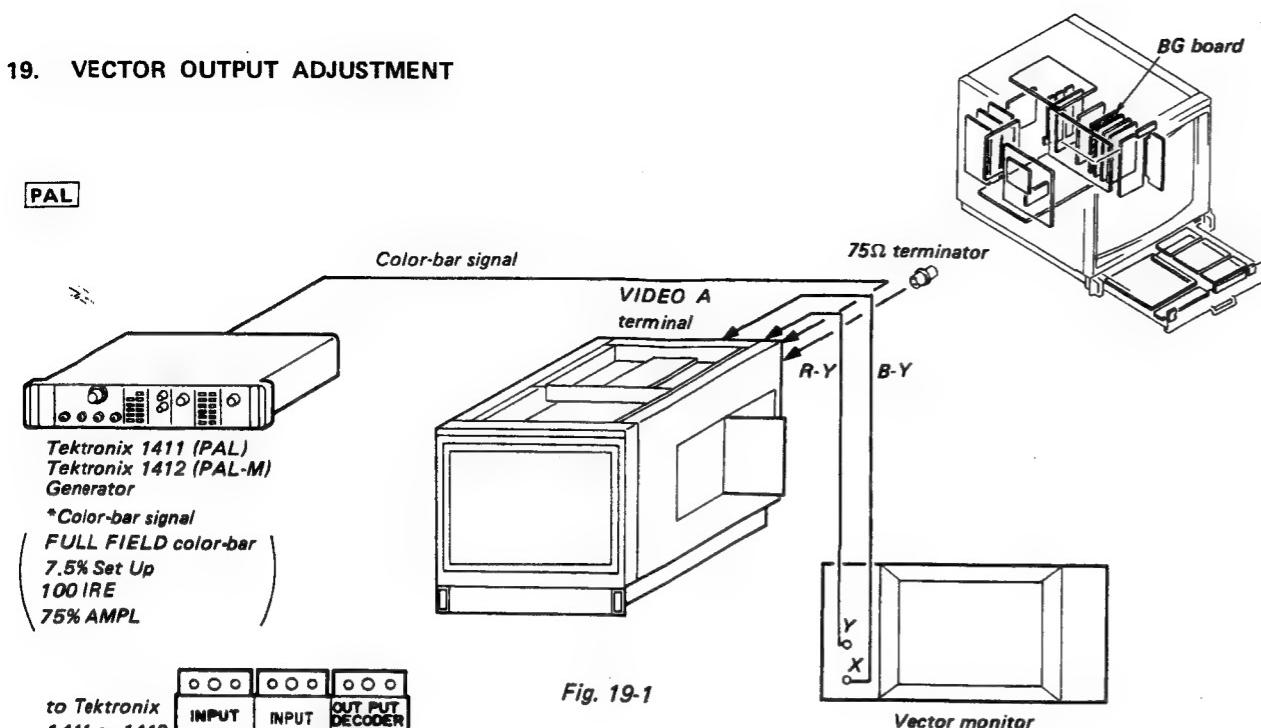


Fig. 18-1

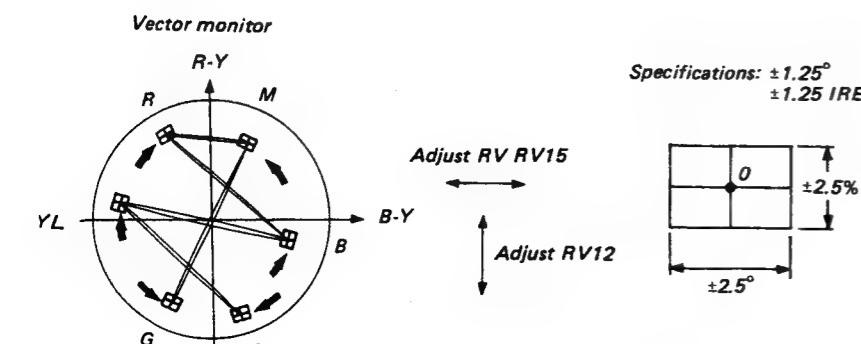


19. VECTOR OUTPUT ADJUSTMENT

PAL



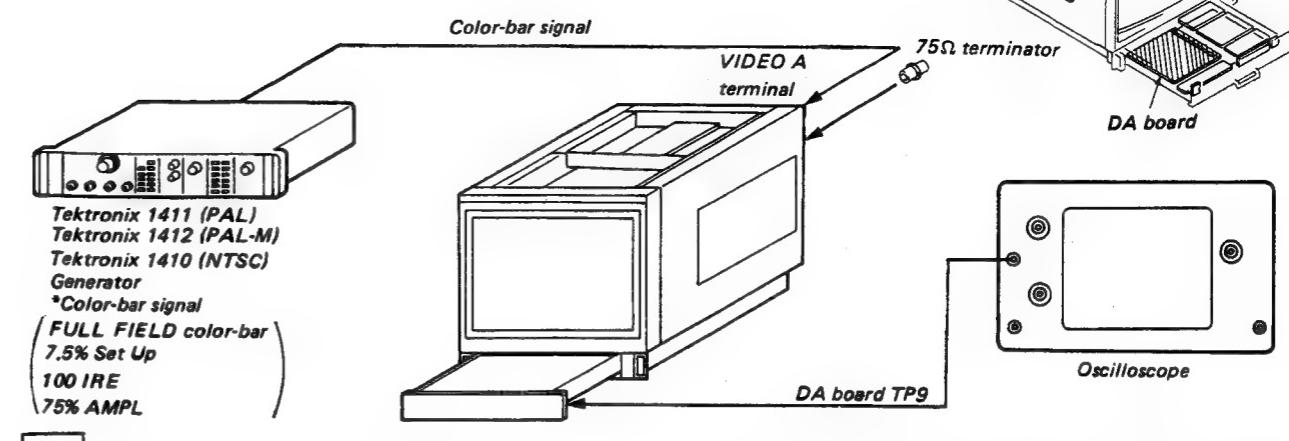
1. Complete the connections as shown in Fig. 19-1.
2. Adjust RV-12 (R-Y) and RV-15 (B-Y) on the BG board so that the areas (6) indicated with arrows Fig. 19-2 enter its center as far as possible.



4-49

20. DA Board V. LEVEL ADJUSTMENT

PAL



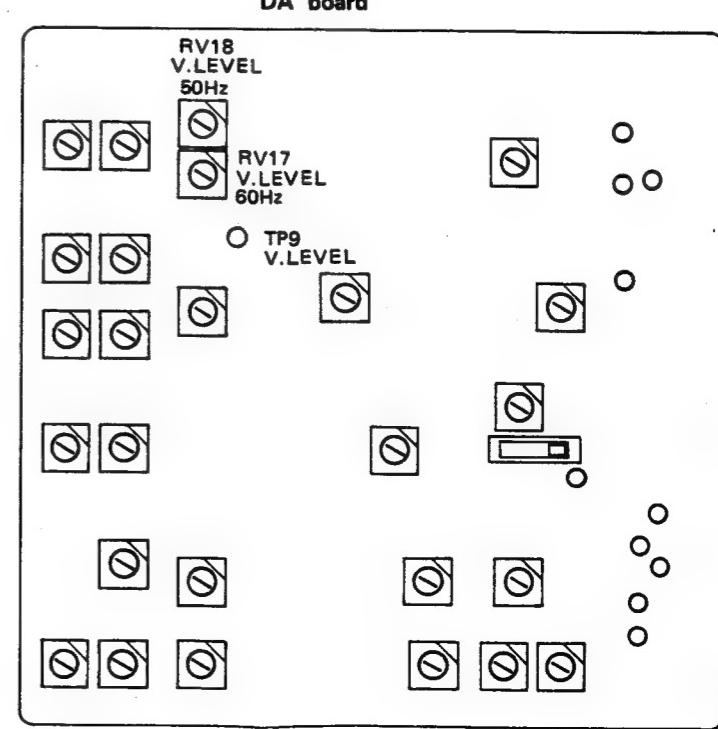
PAL

1. Input color-bar signal to the VIDEO A terminal of the set.
2. Connect an oscilloscope to the TP9 on the DA board.
3. Adjust RV18 on the DA board so that output waveform is 12.0Vp-p as shown in Fig. 20-1.

The following adjustment is required when a PAL-M or NTSC system signal is received.

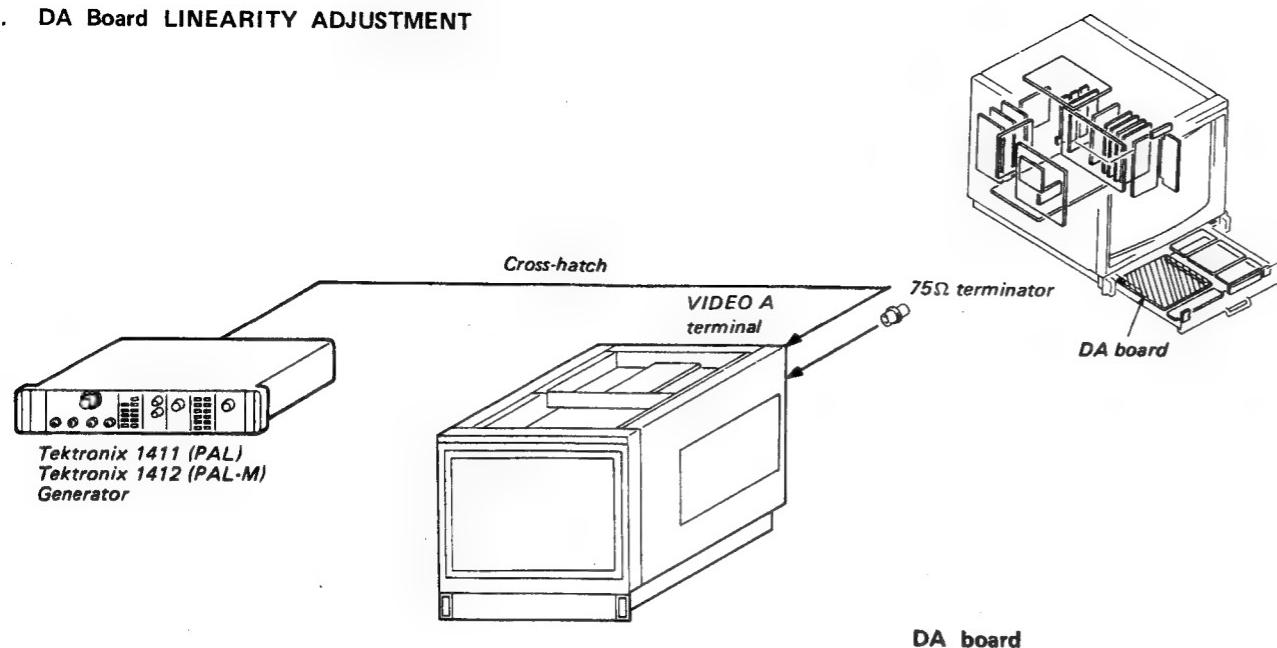
PAL-M / NTSC

4. Input color-bar signal (TEK-1412 or TEK-1410) to the VIDEO A terminal of the set.
5. Connect an oscilloscope to the TP9 on the DA board.
6. Adjust RV17 on the DA board so that output waveform is 12.0Vp-p.



4-50

21. DA Board LINEARITY ADJUSTMENT



TOP AND BOTTOM PIN ADJUSTMENT

1. Receive cross-hatch signal and with H-LINE only.
2. Adjust T&B pin distortion H PHASE by turning DA board RV27 (TRAPEZOID) as shown in Fig. 21-1.
3. Adjust T&B pin distortion gain by turning DA board RV13 as shown in Fig. 21-1.
4. Adjust T&B pin distortion vertical balance by turning DA board RV10 as shown in Fig. 21-1.
5. Adjust PARALLELO GRAM distortion by turning DA board RV28 (PARALLEL) as shown in Fig. 21-1.
6. Mark tracking by repeating 2 through 5.
7. UNDER SCAN switch (front panel) UNDER (underline).
8. Adjust T&B distortion gain by turning DA board RV14.

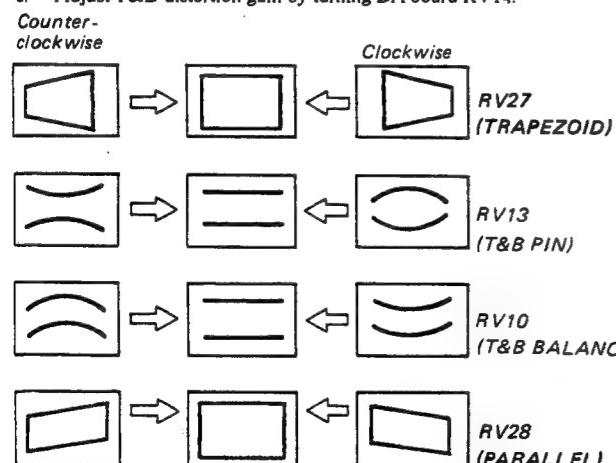
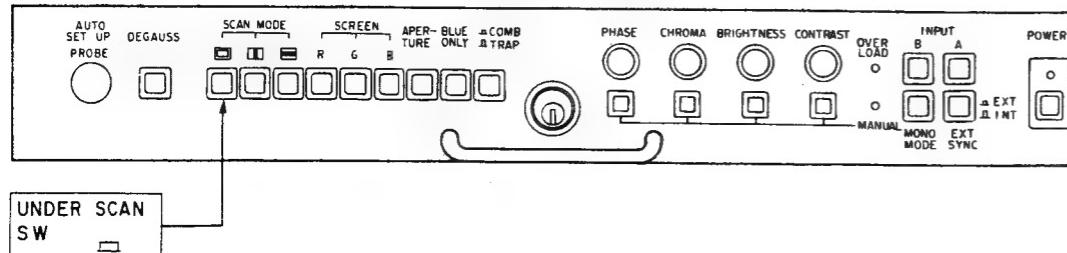


Fig. 21-1

FRONT PANEL



V. LINEARITY ADJUSTMENT

1. Receive cross-hatch signal and with H-LINE only.
2. Adjust V. CENTER by turning DA board RV21.
3. Adjust V. LIN BALANCE by turning DA board RV20 as shown in Fig. 21-1.
4. Adjust V. LIN GAIN by turning DA board RV22 as shown in Fig. 21-1.
5. Adjust V. HEIGHT by turning DA board RV23.
6. Mark tracking by repeating steps 2. through 5.

RV20 V LIN BALANCE

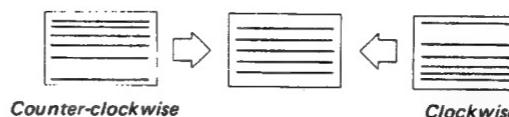


Fig. 21-2

RV22 V LIN GAIN

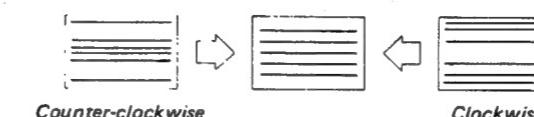


Fig. 21-3

SIDE PIN ADJUSTMENT

1. Receive cross-hatch signal and with V. LINE only.
2. Adjust SIDE PIN by turning DA board RV15 as shown in Fig. 21-4.
3. Adjust SIDE PIN TILT by turning DA board RV19 as shown in Fig. 21-5.
4. Adjust H. CENTER LINE by turning DA board RV25 as shown in Fig. 21-6.

RV15 (SIDE PIN)



Fig. 21-4

RV19 (SIDE PIN TILT)

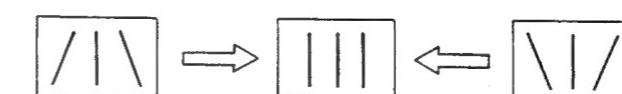


Fig. 21-5

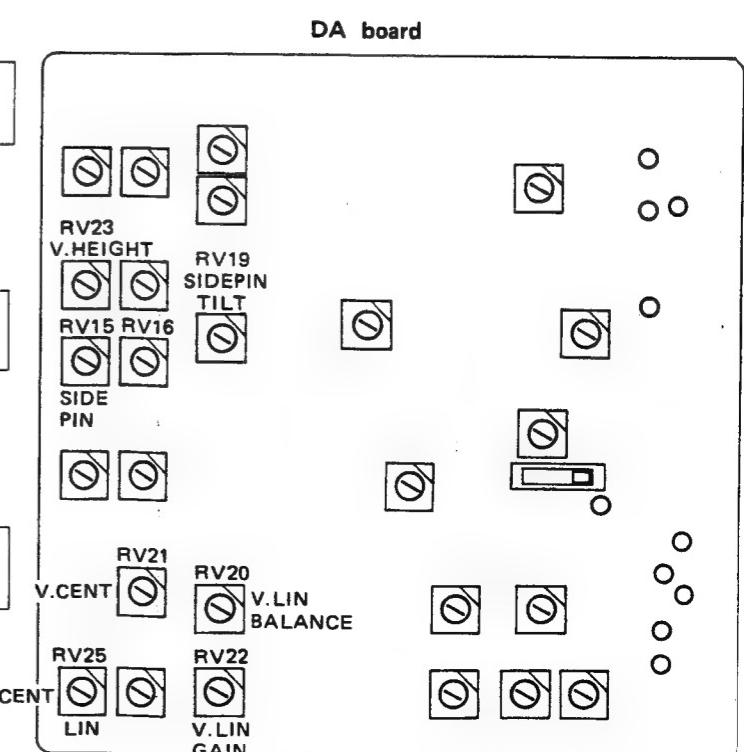
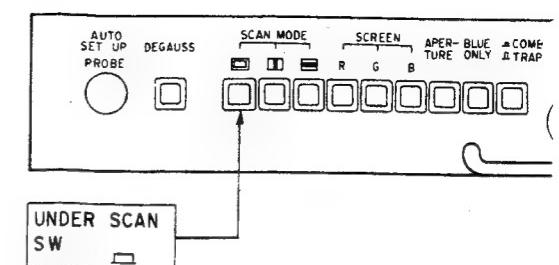
RV25 (H. CENTER LINE)



Fig. 21-6

5. UNDER SCAN switch (Front panel (L)) UNDER (underline).
6. Adjust* SIDE PIN by turning DA board RV16.

FRONT PANEL



H. LINEARITY ADJUSTMENT

1. Receive cross-hatch signal and with V-LINE only.
2. Adjust H. LINEARITY by turning DA board RV6 (H LIN GAIN) as shown in Fig. 21-7.

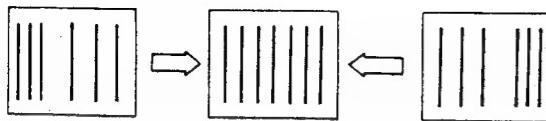
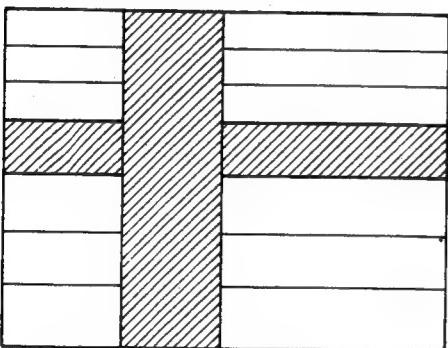


Fig. 21-7

22. H. FREQ ADJUSTMENT

1. Receive cross-hatch signal, and SYNC selector to EXT (—).
2. Adjust until the picture stops drifting or moves slowly by turning DA board RV5 as shown in Fig. 22-1.



* Adjust so that the picture either
stops drifting or moves slowly.

Fig. 22-1

23. DA Board H.CENTER, BLK, H.PHASE ADJUSTMENT

1. Receive monoscope signal, and UNDER SCAN switch to UNDER (—).
2. Picture tube
 - V. DELAY switch IN (—)
3. Adjust RV1 and RV7 on the DA board so that the raster can all be seen by RV1 and RV7 as shown in Fig. 23-1.

H. CENTER

4. Adjust RV26 on the DA board so that the outside portions of the raster become equal to at the right and the left sides as shown in Fig. 23-1.

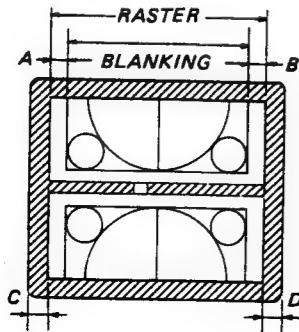


Fig. 23-1

H. BLK Adjustment

5. Connect an oscilloscope to the TP1 on the DA board.
6. Adjust RV1 on the DA board so that the H. BLK pulse width is 9.8μs. Fig. 23-2.

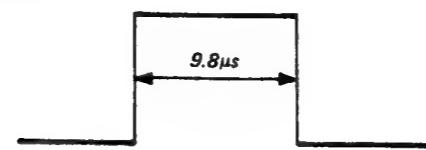


Fig. 23-2

H. BLK PHASE Adjustment

7. Adjust RV7 on the DA board so that the blanking width at the right and the left sides are equal to as shown in Fig. 23-3.

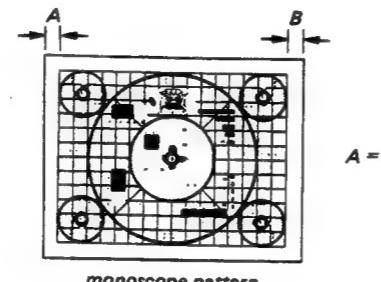


Fig. 23-3

H. PHASE Adjustment

8. Adjust RV26 on the DA board so that the outside raster portions of the picture become equal at the right and the left sides as shown in Fig. 23-4.

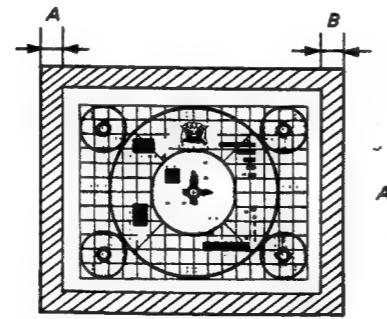
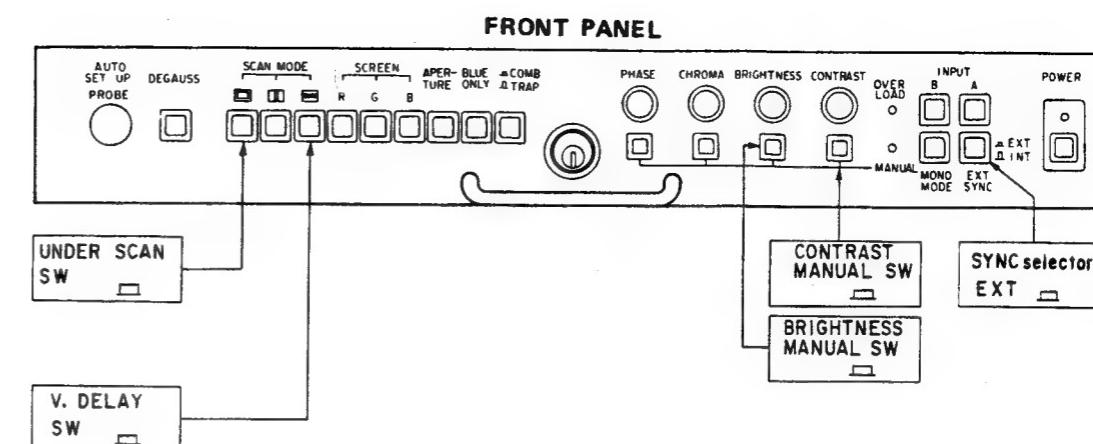
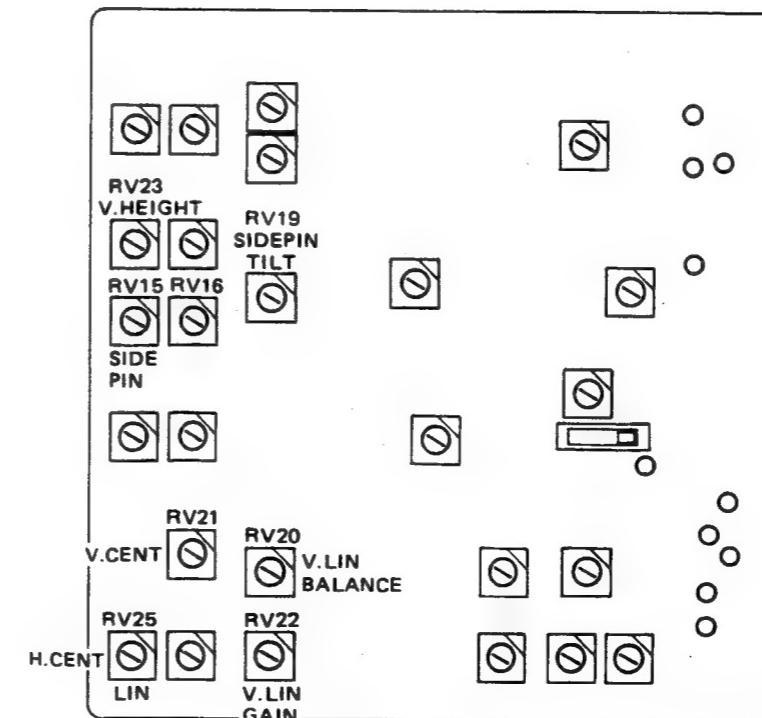


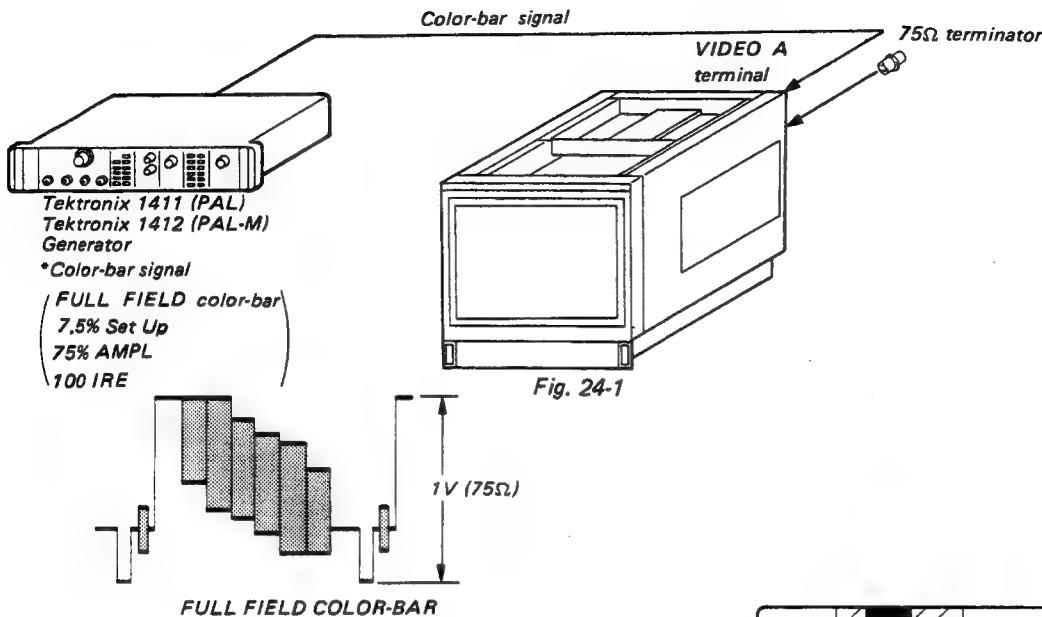
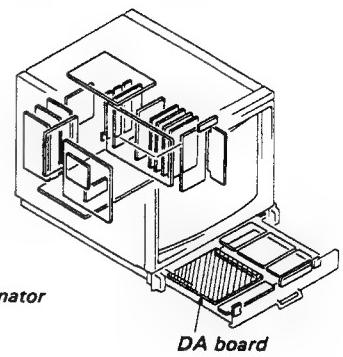
Fig. 23-4



DA board



24. DA Board H DELAY POSITION ADJUSTMENT

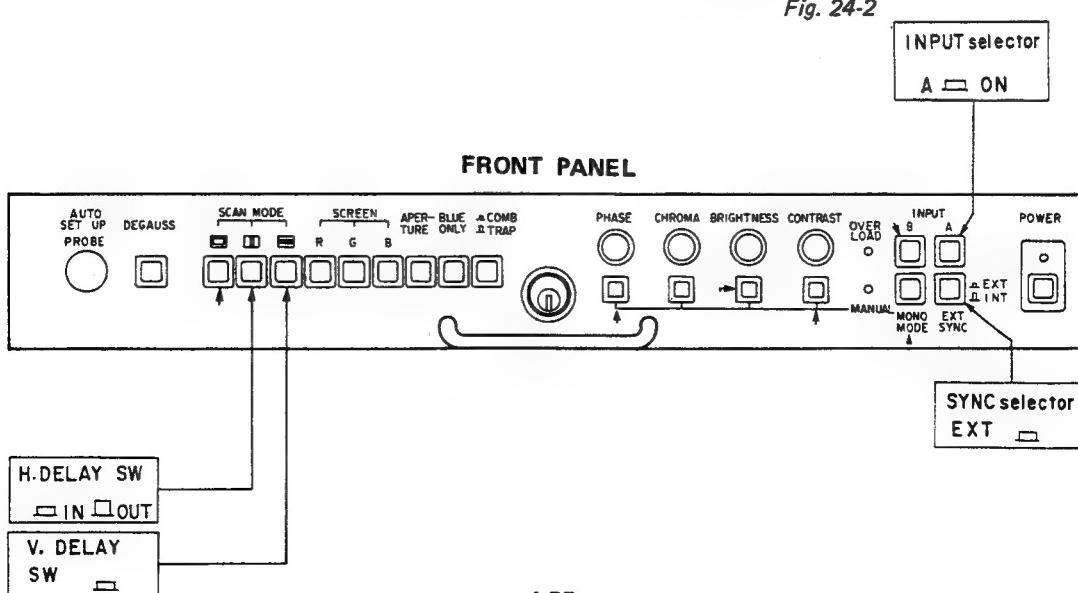
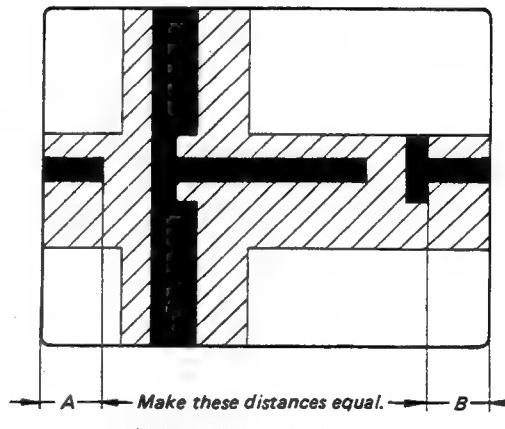


H. DELAY PULSE WIDTH ADJUSTMENT

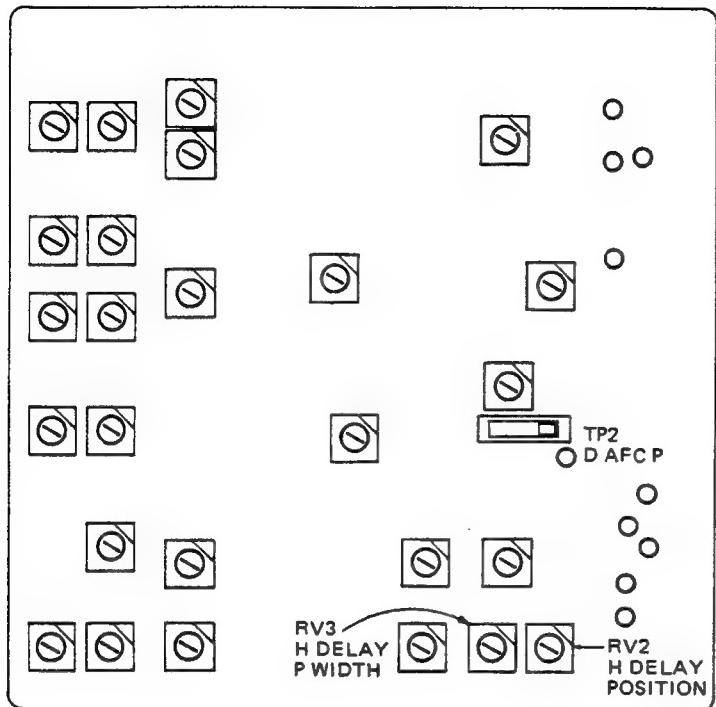
1. Connect an oscilloscope to the TP2 on the DA board.
2. Adjust RV3 on the DA board so that PULSE width is equal when switching H-DELAY switch IN and OUT.

H. DELAY POSITION

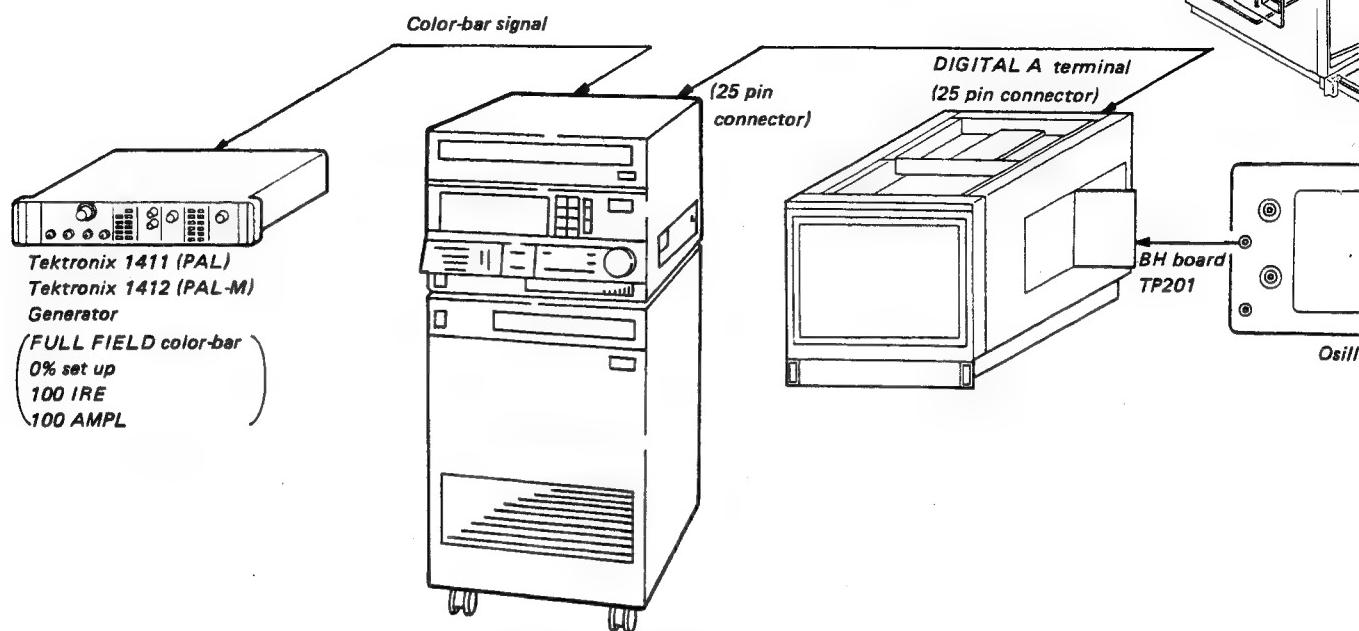
1. Connect as shown in Fig. 24-1.
2. Turn the INPUT selector to "A" (■) SYNC selector to "INT" (□) and, H DELAY & V DELAY SW to "IN" (■) (pulse close position).
3. Adjust the H-DELAY position as shown in Fig. 24-2 by turning DA Board RV2.



DA board



25. BR BOARD Y LEVEL ADJUSTMENT (BVM-2010PD/PMD ONLY)



**4 : 2 : 2 Component Digital VTR
DVR-1000/DVPC-1000**

1. Receive color-bar signal (100/0/100).
 - COLOR STANDARD SELECTOR (SUB CONTROL PANEL)
 - DIGITAL (NTSC)
 - DIGITAL TV STANDARD SELECTOR (BR BOARD S1)
 - LOWER (625/50)
 - COLOR STANDARD SELECTOR (BR BOARD S3)
 - UPPER (NTSC)
2. Connect an oscilloscope to TP201 on the BH board.
3. Adjust with RV301 on the BR board so that the levels of A and B become equivalent as shown in Fig. 29-1.

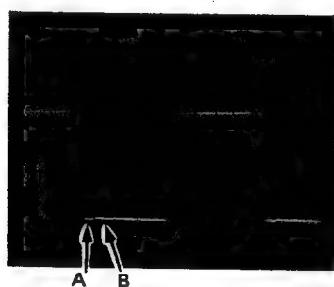
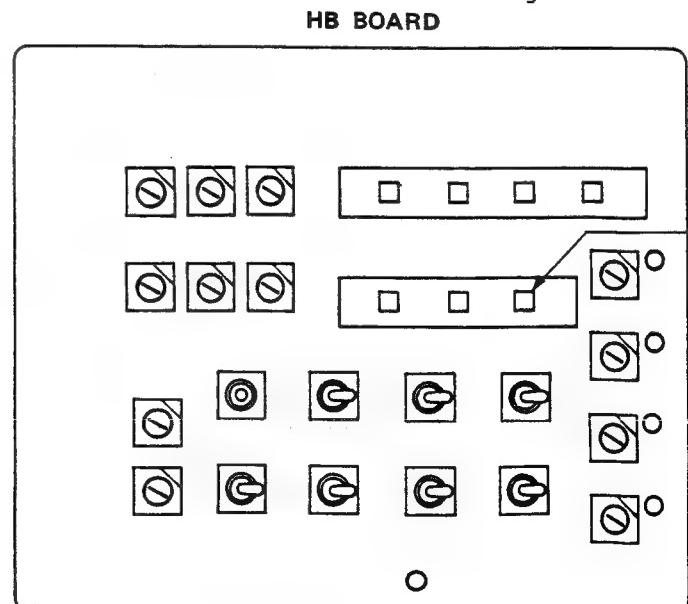


Fig. 29-1

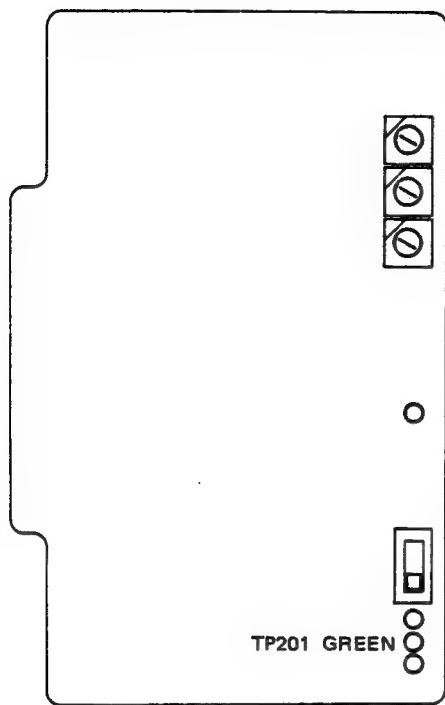


board

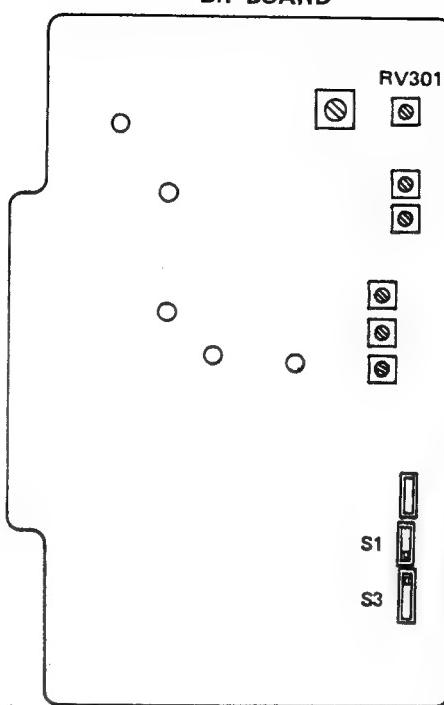
BH board

HB board

BH BOARD

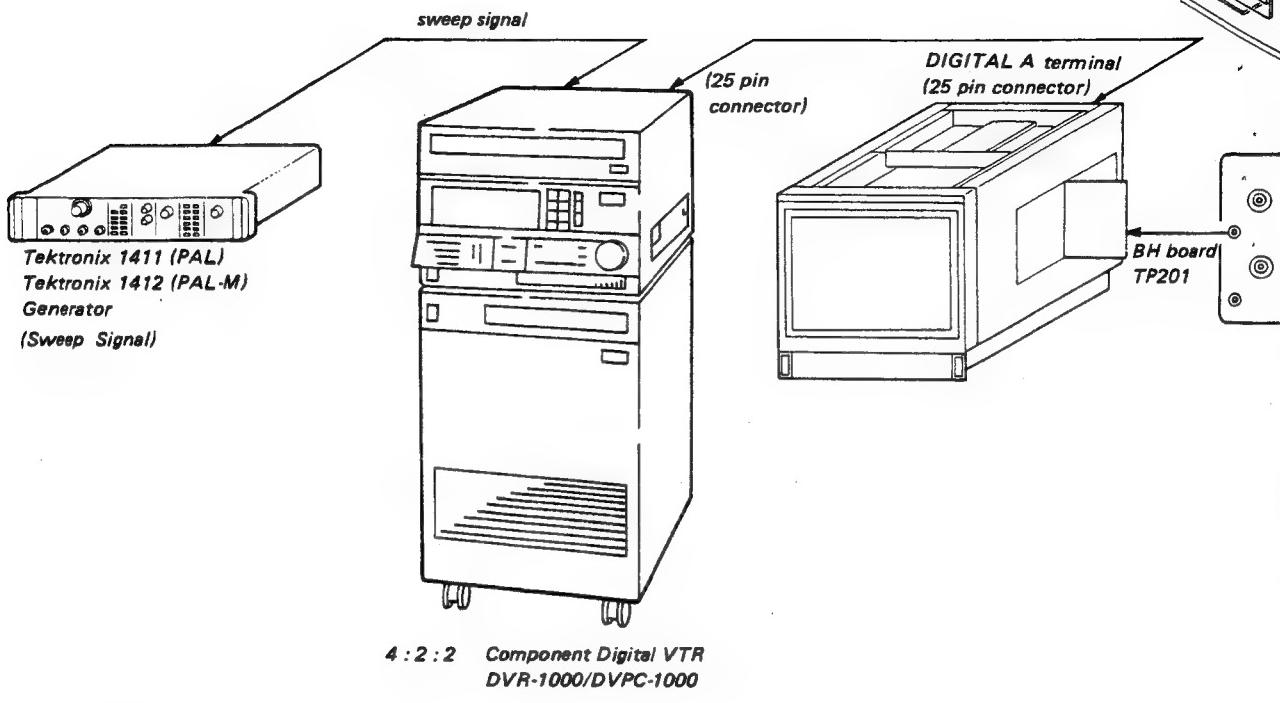


BR BOARD



ALM ON

26. BR BOARD Y FREQUENCY CHARACTERISTICS ADJUSTMENT (BVM-2010PD/PMD ONLY)



1. Receive sweep signal.
 - COLOR STANDARD SELECTOR (SUB CONTROL PANEL)
 - DIGITAL (NTSC)
 - DIGITAL TV STANDARD SELECTOR (BR BOARD S1)
 - LOWER (625/50)
 - COLOR STANDARD SELECTOR (BR BOARD S3)
 - UPPER (NTSC)
2. Connect an oscilloscope to TP201 on the BH board.
3. Adjust with CV301 on the BR board so that the output waveform of 0 to 5 MHz range becomes flat as shown in Fig. 30-1.

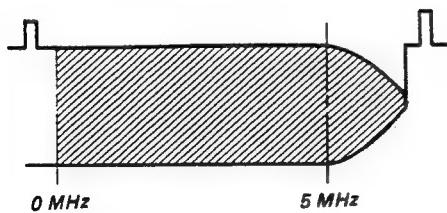
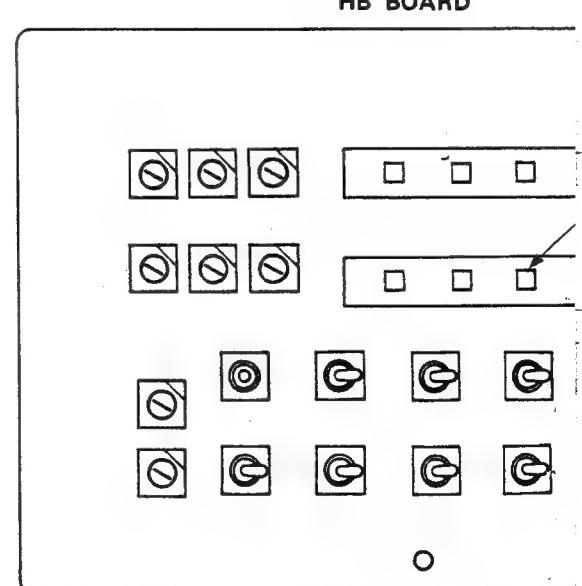
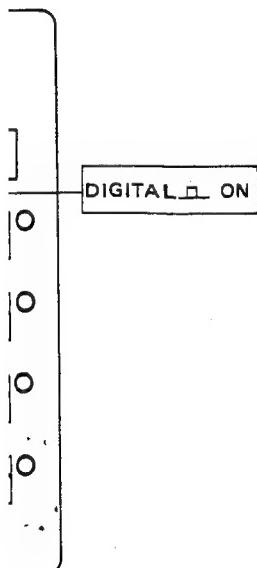
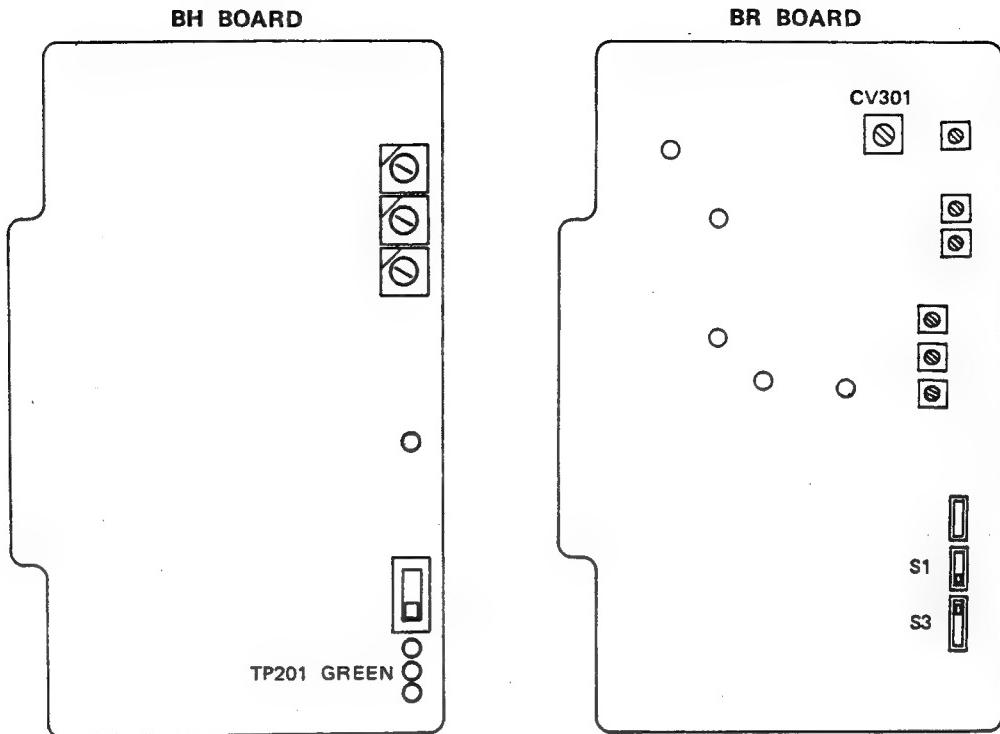
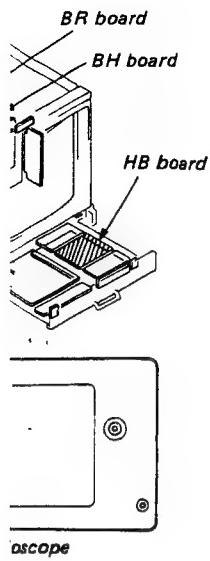
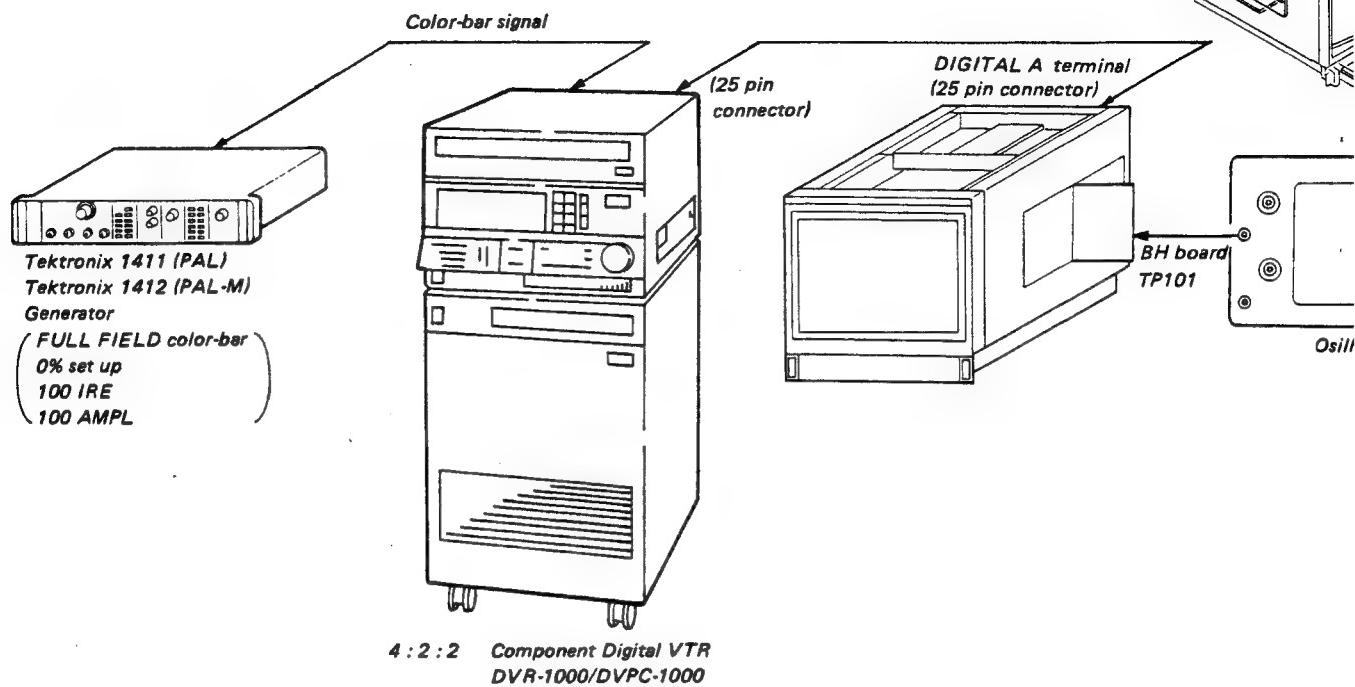


Fig. 30-1

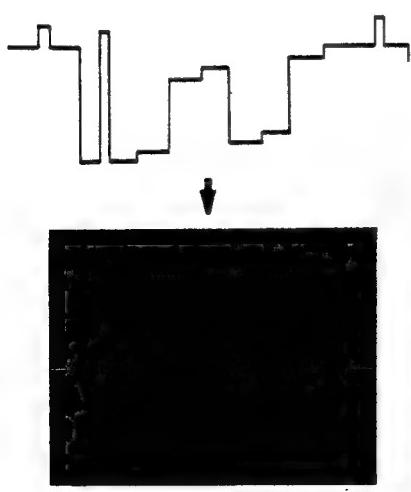




27. BR BOARD R-Y LEVEL ADJUSTMENT (BVM-2010PD/PMD ONLY)



1. Receive color-bar signal (100/0/100).
 - COLOR STANDARD SELECTOR (SUB CONTROL PANEL)
 -DIGITAL (NTSC)
 - DIGITAL TV STANDARD SELECTOR (BR BOARD S1)
 -LOWER (625/50)
 - COLOR STANDARD SELECTOR (BR BOARD S3)
 -UPPER (NTSC)
2. Connect an oscilloscope to TP101 on the BH board.
3. Adjust with RV101 on the BR board so that it becomes as shown in Fig. 31-1.



HB BOARD

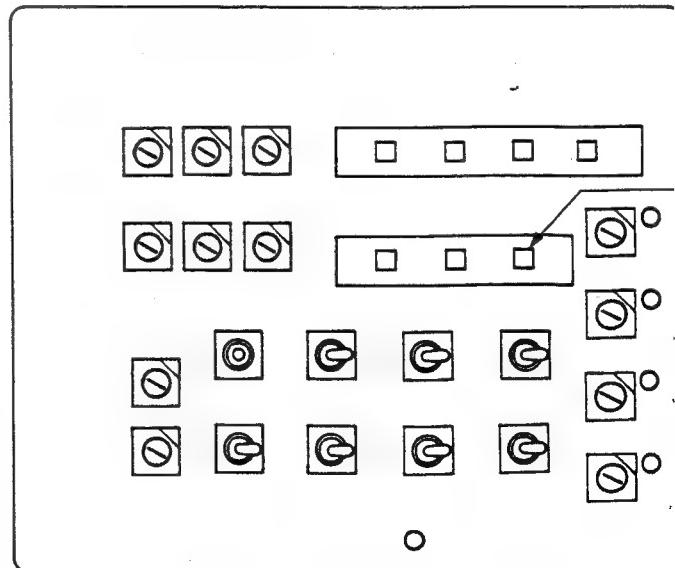
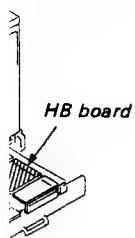


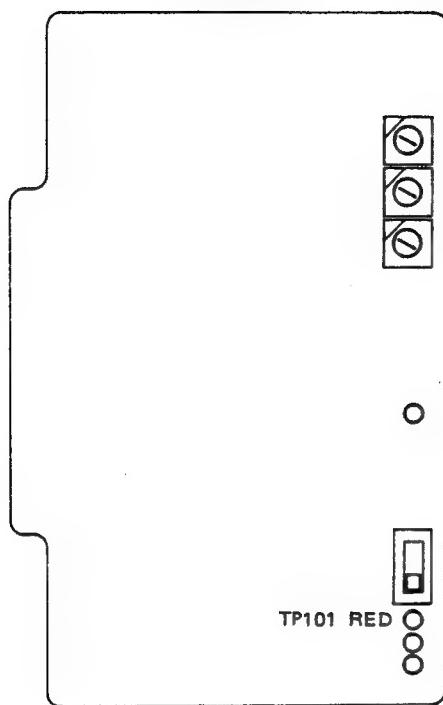
Fig. 31-1

board

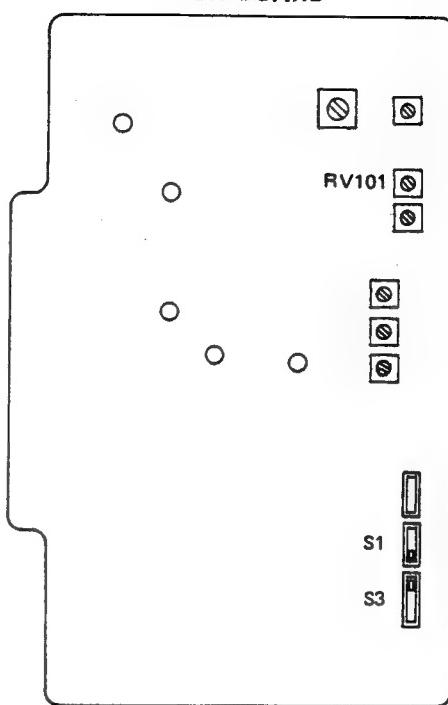
BH board



BH BOARD

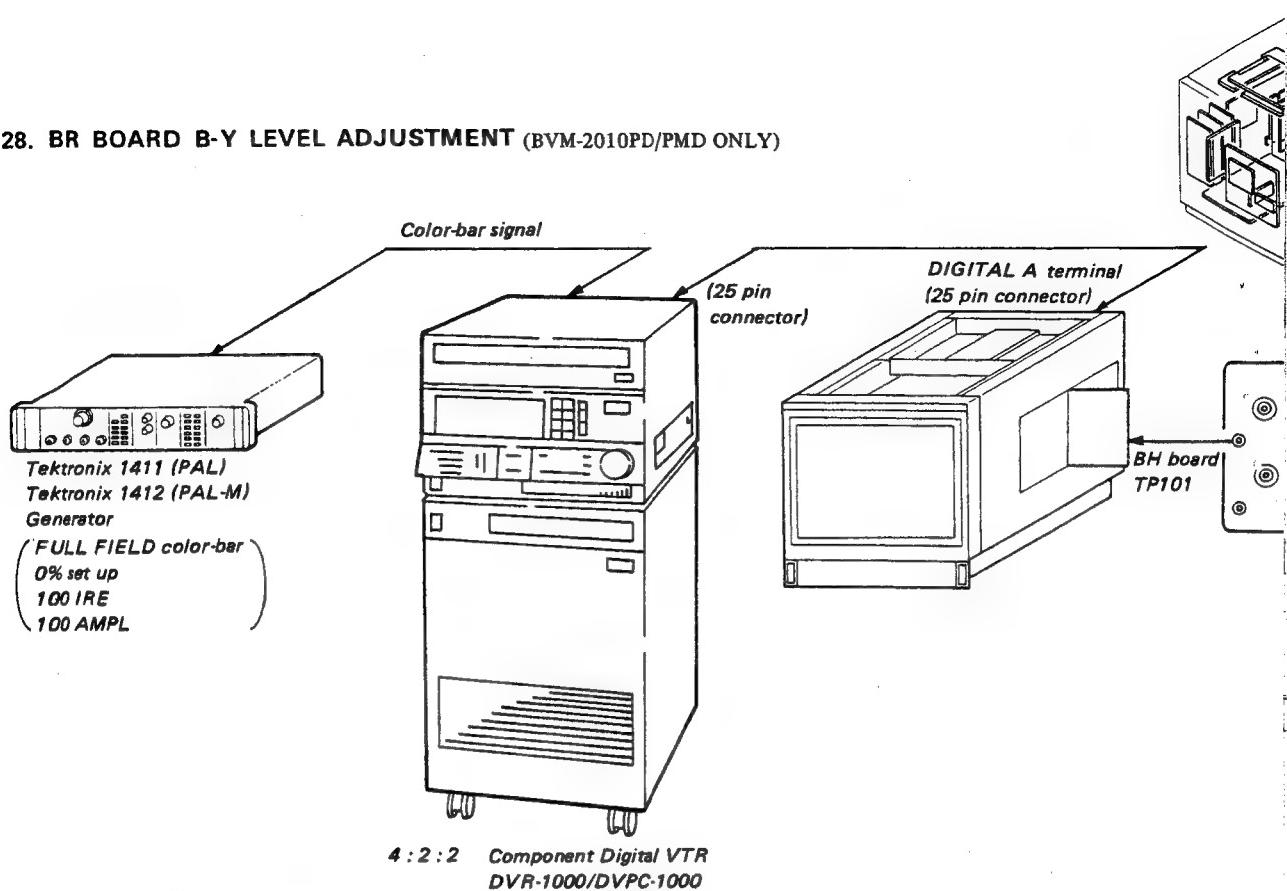


BR BOARD



TAL₁ ON

28. BR BOARD B-Y LEVEL ADJUSTMENT (BVM-2010PD/PMD ONLY)



1. Receive color-bar signal
 - COLOR STANDARD SELECTOR (SUB CONTROL PANEL)
 - DIGITAL (NTSC)
 - DIGITAL TV STANDARD SELECTOR (BR BOARD S1)
 - LOWER (625/50)
 - COLOR STANDARD SELECTOR (BR BOARD S3)
 - UPPER (NTSC)
2. Connect an oscilloscope to TP301 on the BH board.
3. Adjust with RV201 so that it becomes as shown in Fig. 32-1.

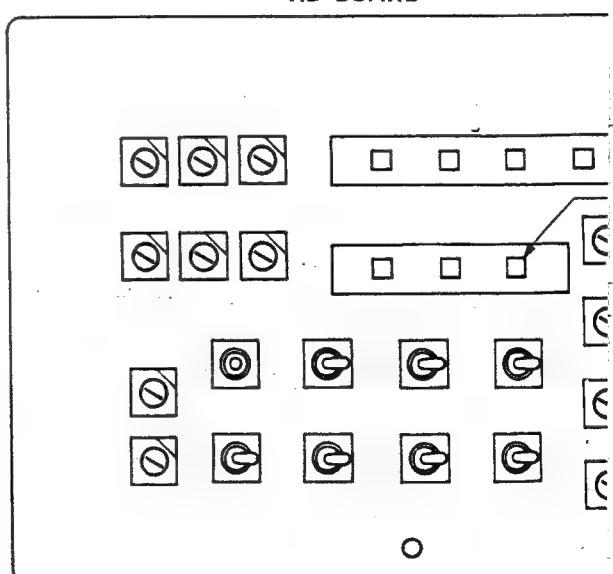
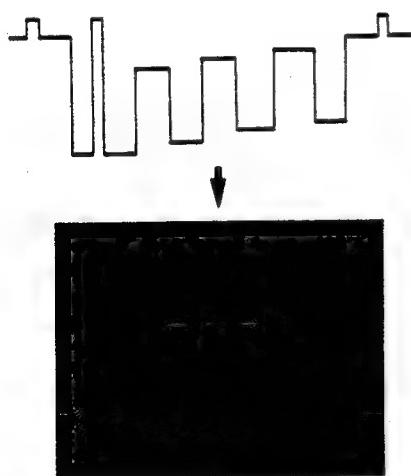
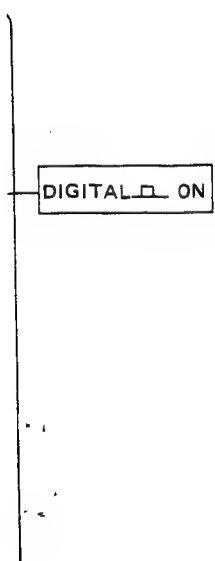
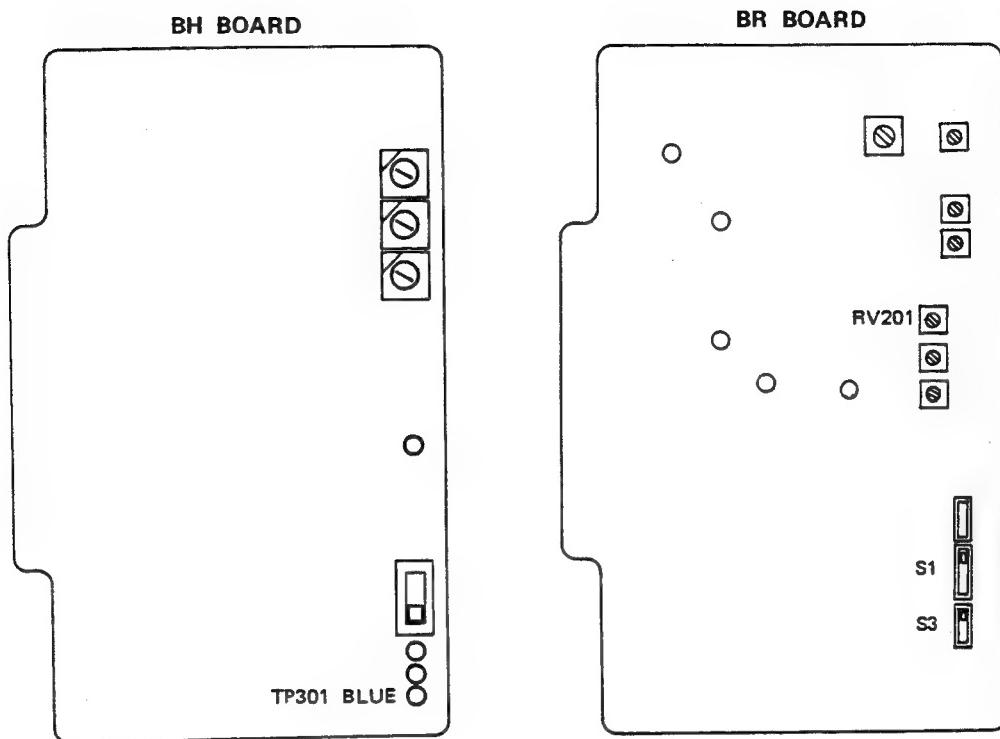
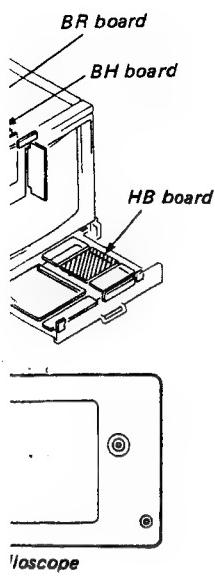
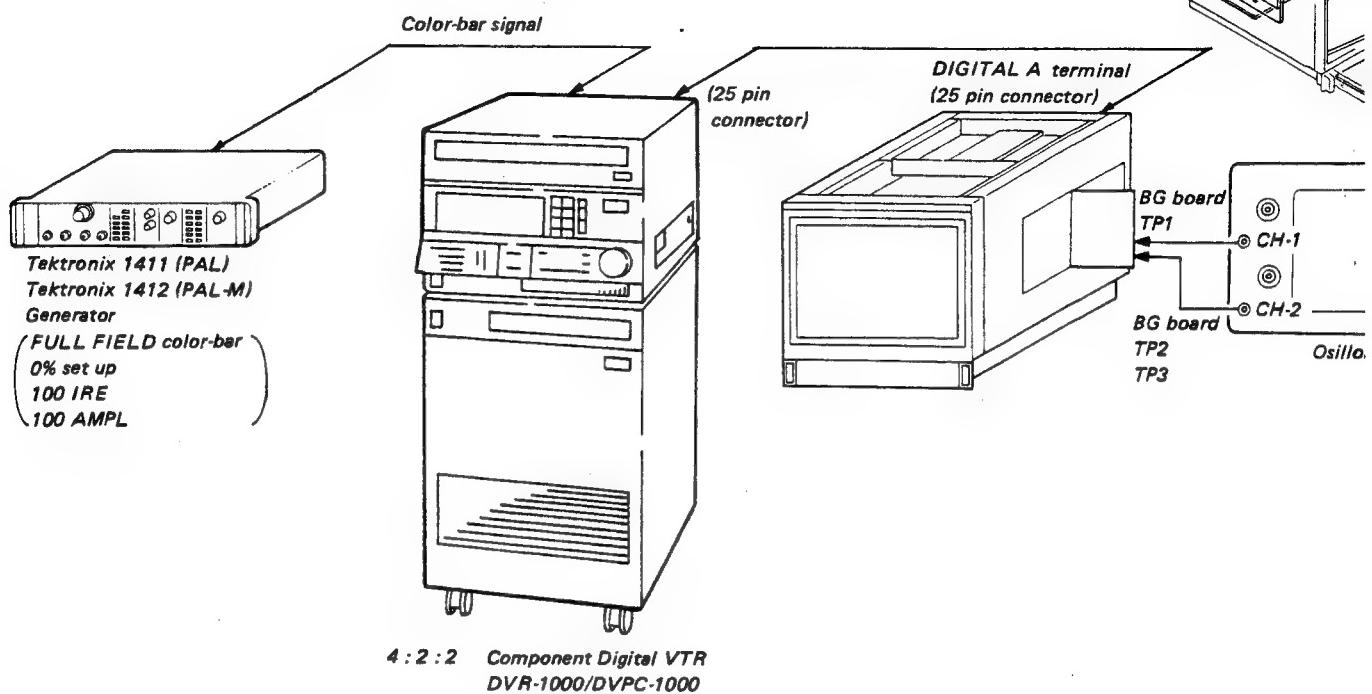


Fig. 32-1



29. BR BOARD Y-(R-Y) [Y-(B-Y)] DELAY TIME ADJUSTMENT (BVM-2010PD/PMD ONLY)



1. Receive color-bar signal.
 - COLOR STANDARD SELECTOR (SUB CONTROL PANEL)
 - DIGITAL (NTSC)
 - DIGITAL TV STANDARD SELECTOR (BR BOARD S1)
 - LOWER (625/50)
 - COLOR STANDARD SELECTOR (BR BOARD S3)
 - UPPER (NTSC)
2. Connect CH1 probe of oscilloscope to TP1 on the BG board and CH2 probe to TP2 (TP3) on the BG board.
3. Adjust the respective positions of oscilloscope so that the waveform of CH1 becomes $a = a'$ and that of CH2 becomes $b = b'$ against the center scale as shown in Fig. 33-1.
4. Enlarge $a - a'$ and $b - b'$ sections in Fig. 33-1.
5. Adjust with RV102 and RV202 on the BR board so that the intersecting point of waveforms CH1 and CH2 becomes on the center scale.

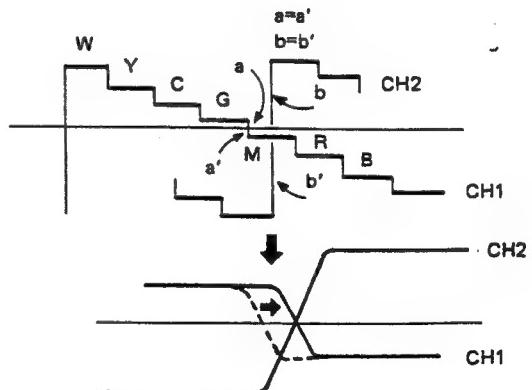


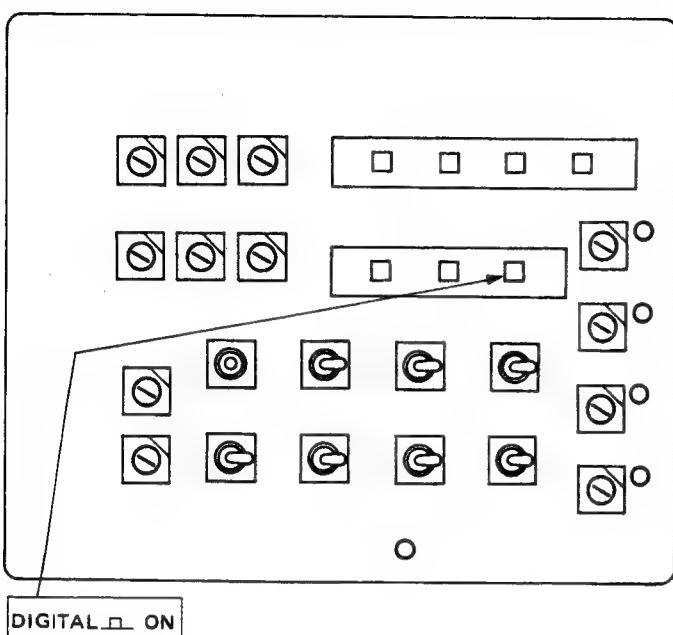
Fig. 33-1

board

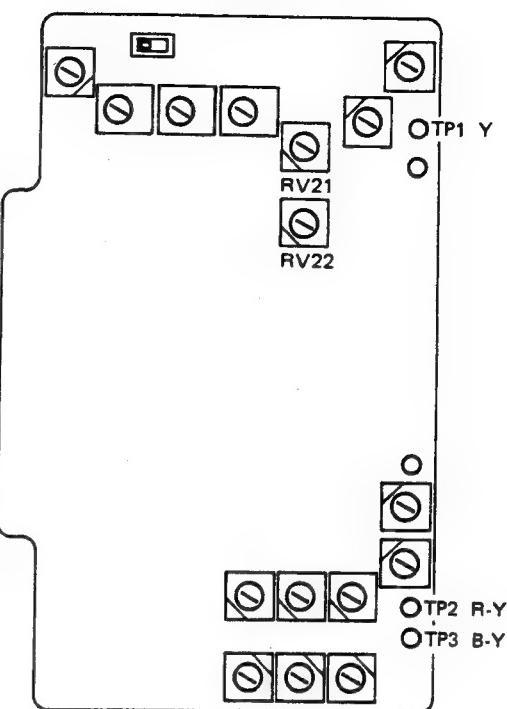
BG board

HB board

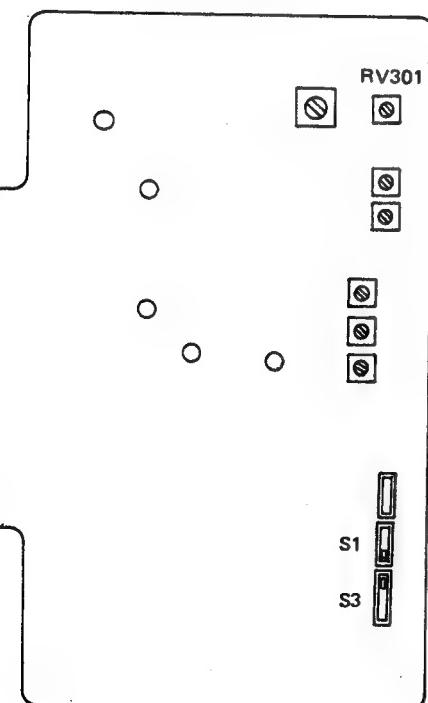
HB BOARD



BG BOARD



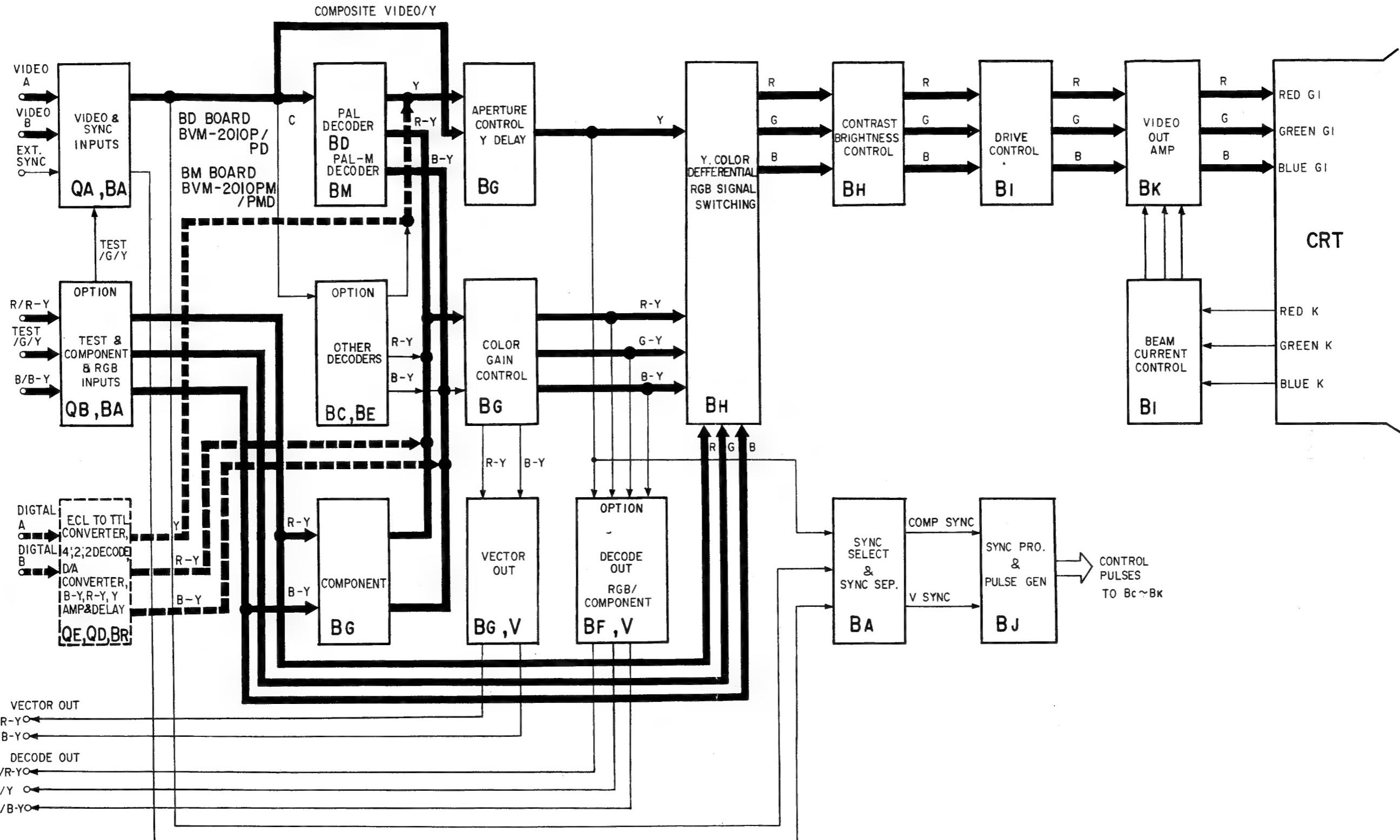
BR BOARD



BLOCK DIAGRAM

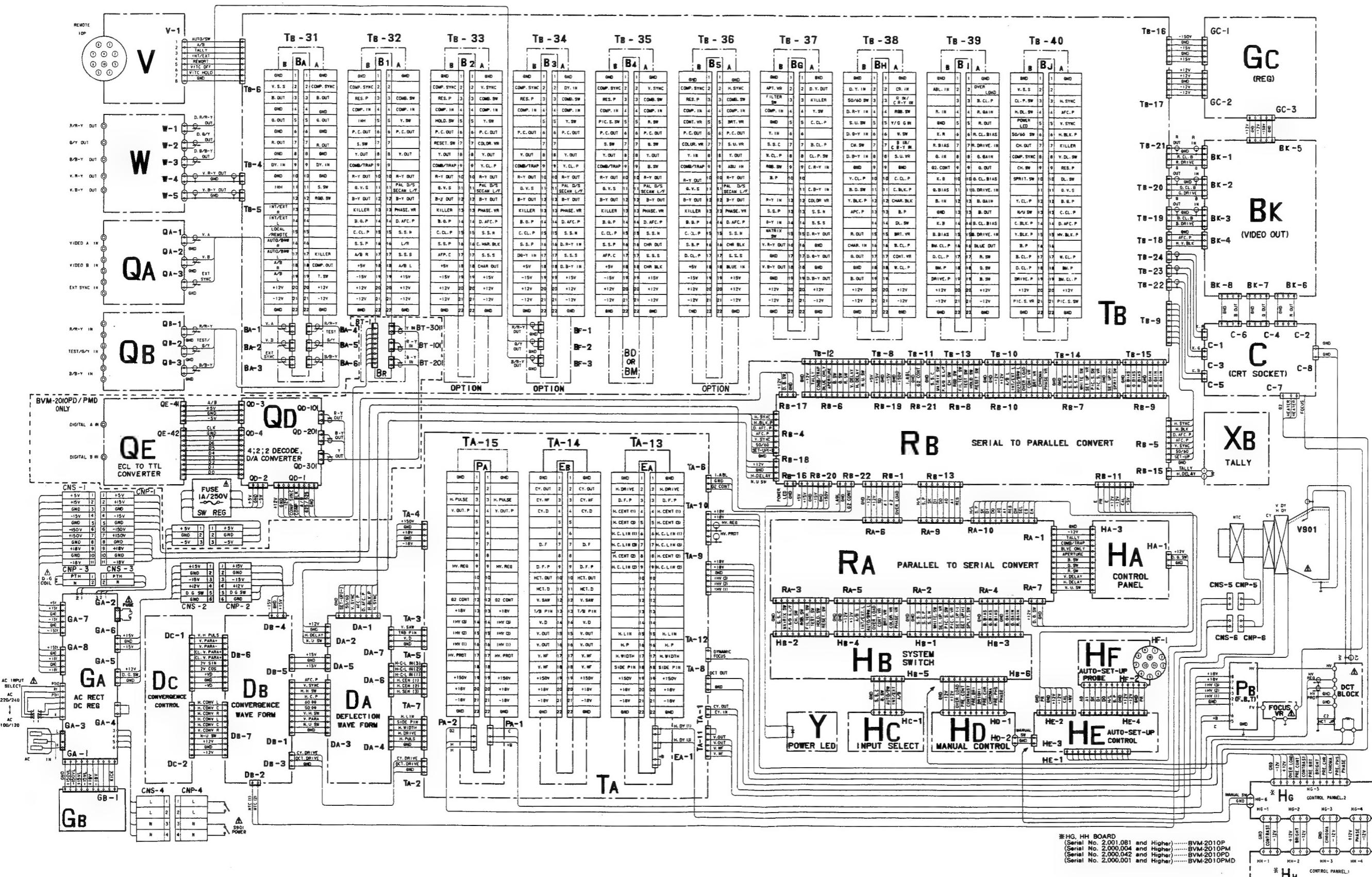
SECTION 5 DIAGRAMS

5-1. BLOCK DIAGRAM
SIGNAL PROCESSING BLOCK DIAGRAM
* BVM-2010PD/PMD only



5-2. FRAME WIRING DIAGRAM

FRAME FRAME



*HG, HH BOARD
 (Serial No. 2,001,081 and Higher).....BVM-2010P
 (Serial No. 2,000,004 and Higher).....BVM-2010PM
 (Serial No. 2,000,042 and Higher).....BVM-2010PD
 (Serial No. 2,000,001 and Higher).....BVM-2010PMD

*H_H CONTROL PANEL

5-3. MOUNTING AND SCHEMATIC DIAGRAMS

Note:

Note: The components identified by shading and mark  are critical for safety. Replace only with part number specified.

- All capacitors are in μF unless otherwise noted. μF : $\mu\mu\text{F}$ 50 WV or less are not indicated except for electrolytics.
- All resistor are in ohms, 1/2W on the C board and 1/4W on the rest of the boards unless otherwise specified. $\text{k}\Omega = 1000\Omega$, $\text{M}\Omega = 1000\text{k}\Omega$
-  : nonflammable resistor.
- Δ : internal component.
-  : direct connection to points marked  on the chassis
-  : panel designation.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- The components identified by  in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
When replacing components identified by , make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by  and repeat the adjustment until the specified value is achieved.
Refer to R52, R53, R67, R68, R124, R126, R222, R227, R228 and R239.
Adjust on page 4-11 ~ 4-16.
When replacing the part in below table, be sure to perform the related adjustment.
- * Selected to yield optimum performance.

Reference information

RESISTOR :	RN METAL FILM
:	RC SOLID
:	FPRD NONFLAMMABLE CARBON
:	FUSE NONFLAMMABLE FUSIBLE
:	RS NONFLAMMABLE WIREWOUND
:	RB NONFLAMMABLE CEMENT
COIL :	LF-8L MICRO INDUCTOR
CAPACITOR:	TA TANTALUM
:	PS STYROL
:	PP POLYPROPYLENE
:	PT MYLAR
:	MPS METALIZED POLYESTER
:	MPP METALIZED POLYPROPYLENE
:	ALB BIPOLAR
:	ALT HIGH TEMPERATURE
:	AIR HIGH RIPPLE

Part replaced ()	Adjustment ()
C59, IC3, R67, R68, R78, RV2 ... (GA board)	+B MAX (R67, R68) Page 4-11.
Q13, Q14, R52, R53 ... (GA board) D5, D6, D7, D8, Q3, Q4, Q5, R4, R5, R19, R20, R21, R22 ... (GB board)	+B PROTECTOR (R52, R53) Page 4-11.
D216, IC1, IC4, R123, R124, R125, R126, R136, R137, R138, R203, R204, RV1 ... (PA board) DCT BLOCK	HV REG (R124, R126) Page 4-16.
D205, D207, D215, IC2, R201, R202, R203, R213, R214, R225, R226, R227, R228, R243, R245 ... (PA board) DCT BLOCK	HV HOLD DOWN (R227, R228) Page 4-14.
D205, D206, D215, IC2, R201, R202, R213, R214, R220, R221, R222, R223, R224, R242 ... (PA board) T1 (FBT), R1, R2, R5 ... (PB board)	BEAM CURRENT PROTECTOR-1 (R222) Page 4-11~4-13.
D204, D216, IC3, R203, R204, R231, R232, R237, R238, R239, R240, R241, R247 ... (PA board) T1 (FBT), R3, R4, R6 ... (PB board)	BEAM CURRENT PROTECTOR-2 (R239) Page 4-12~4-13.

-  : adjustment for repair.
-  : B+ bus.
-  : B- bus.
- Circle numbers are waveform references.
- Waveforms are taken with a color-bar signal input and with a 75Ω terminator connected to an open terminal.

- Switches and controls are set as follows unless otherwise noted.

FRONT PANEL

- INPUT selector A
- SYNC selector INT
- MODE selector AUTO
- CONTRAST MANUAL switch PRESET
- BRIGHTNESS MANUAL switch PRESET
- CHROMA MANUAL switch PRESET
- PHASE MANUAL switch PRESET
- SCAN MODE switch
 - UNDER SCAN NOR
 - H. DELAY NOR
 - V. DELAY NOR
- SCREEN switch (R) NOR
- SCREEN switch (G) NOR
- SCREEN switch (B) NOR
- APT switch NOR
- BLUE ONLY switch NOR
- COMB/TRAP filter selector TRAP

HC board

HA board

SUB CONTROL PANEL

- INPUT SELECT buttons B
- COLOR STANDARD buttons NTSC
- FILTER switch OFF
- MATRIX switch OFF
- PAL/SÉCAM mode selector D(L)
- WHITE/OPERATE/SET UP selector OPERATE
- SPRIT SCREEN switch OFF
- CROSS HATCH switch OFF
- VITC switch OFF
- PIC. SET UP switch OFF
- AFC switch 2m sec

HB board

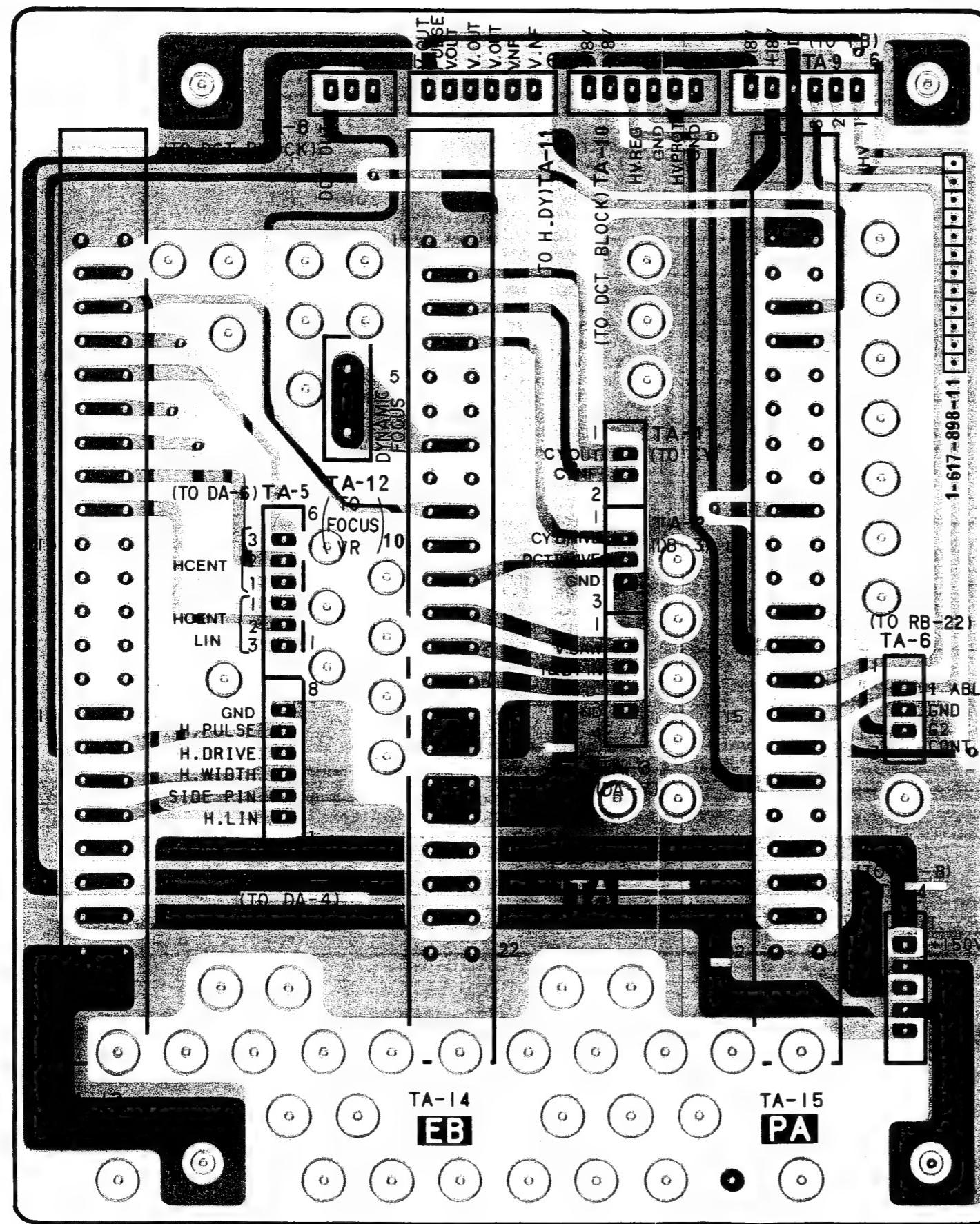
DA board

Note:

-  : Conductor side pattern
-  : Component side pattern

TA TA

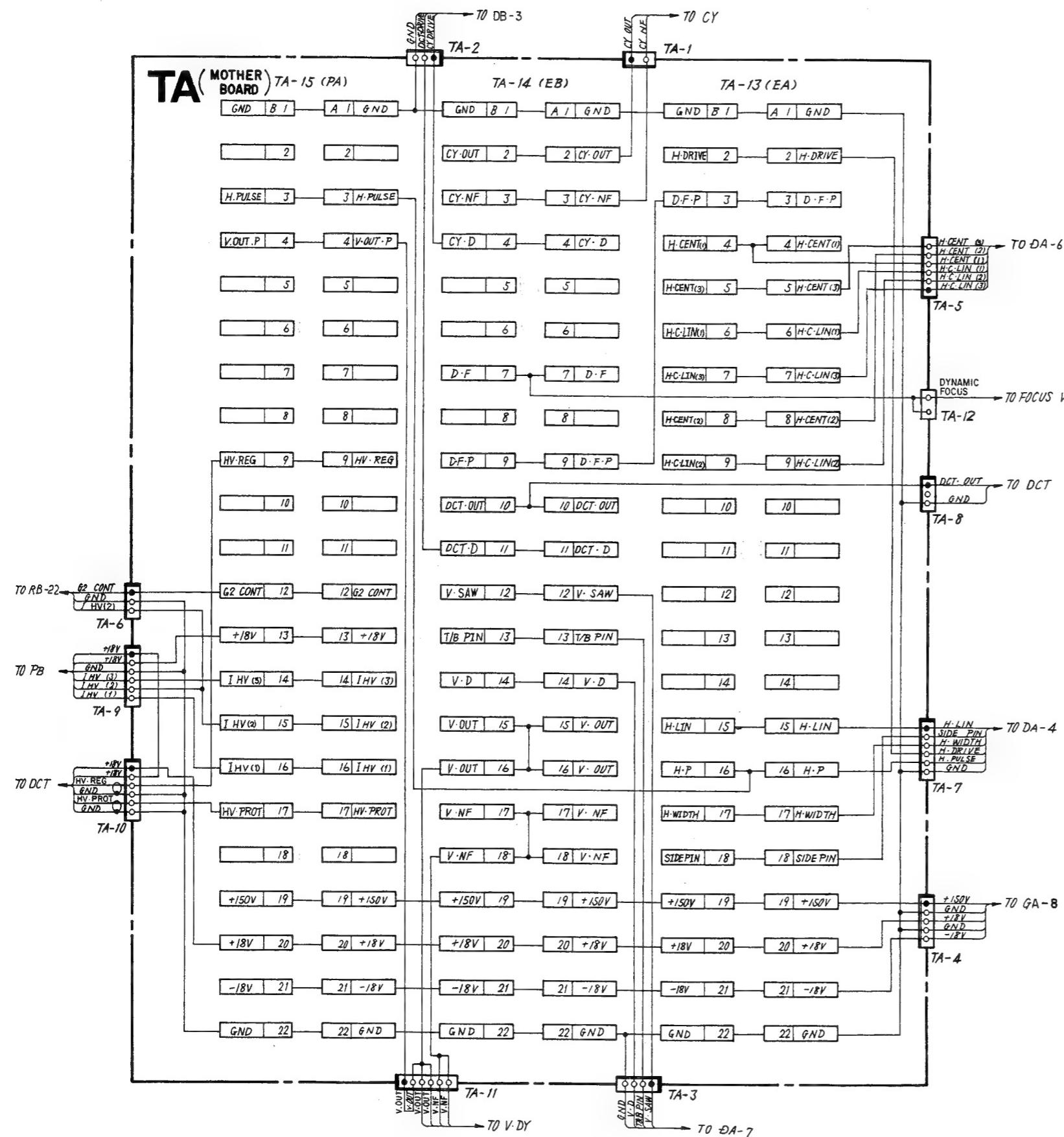
TA board (MOTHER BOARD)



- [REDACTED]: Conductor side pattern
- [REDACTED]: Component side pattern

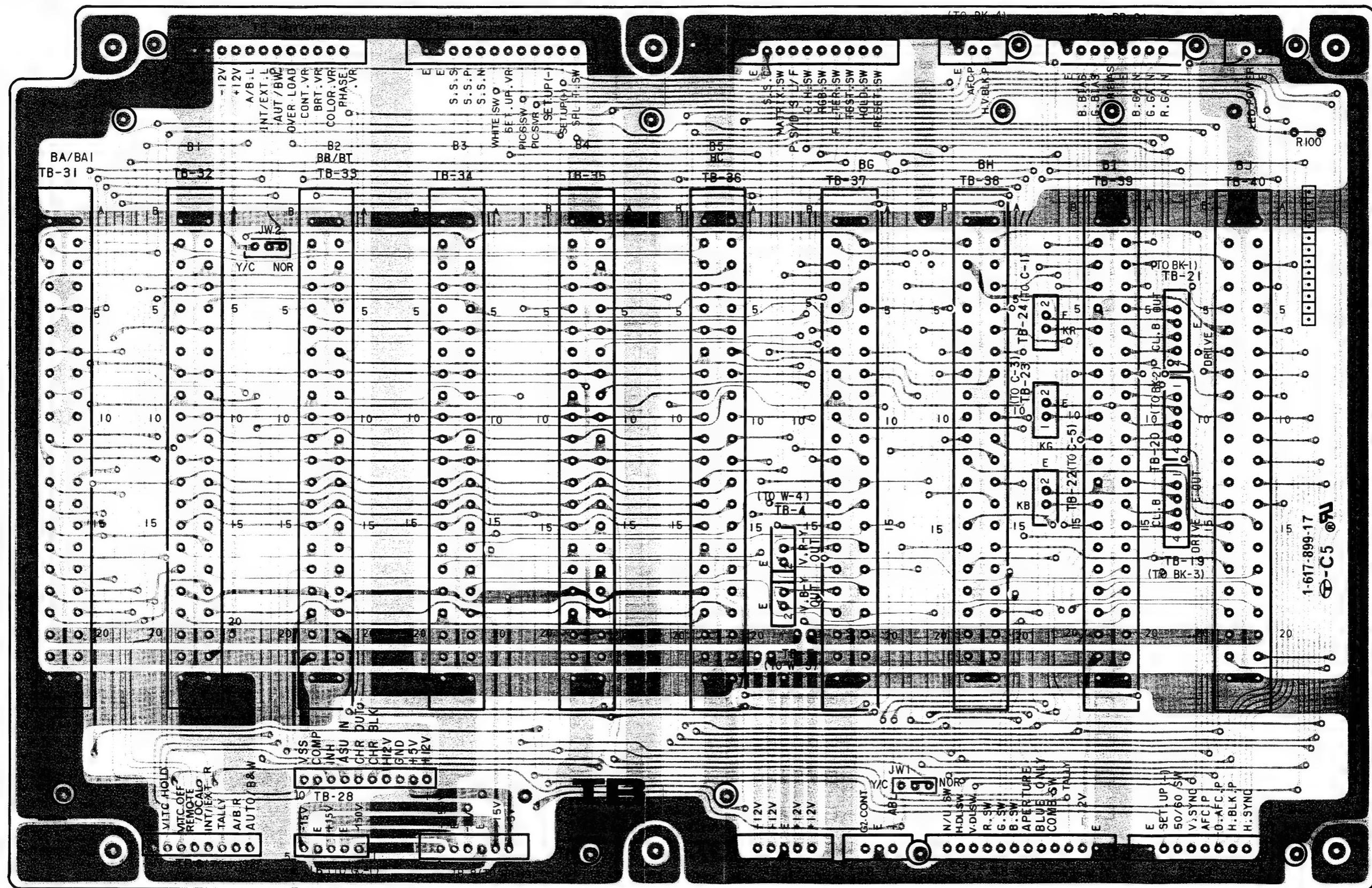
TA TA

TA board (MOTHER BOARD)



TB TB

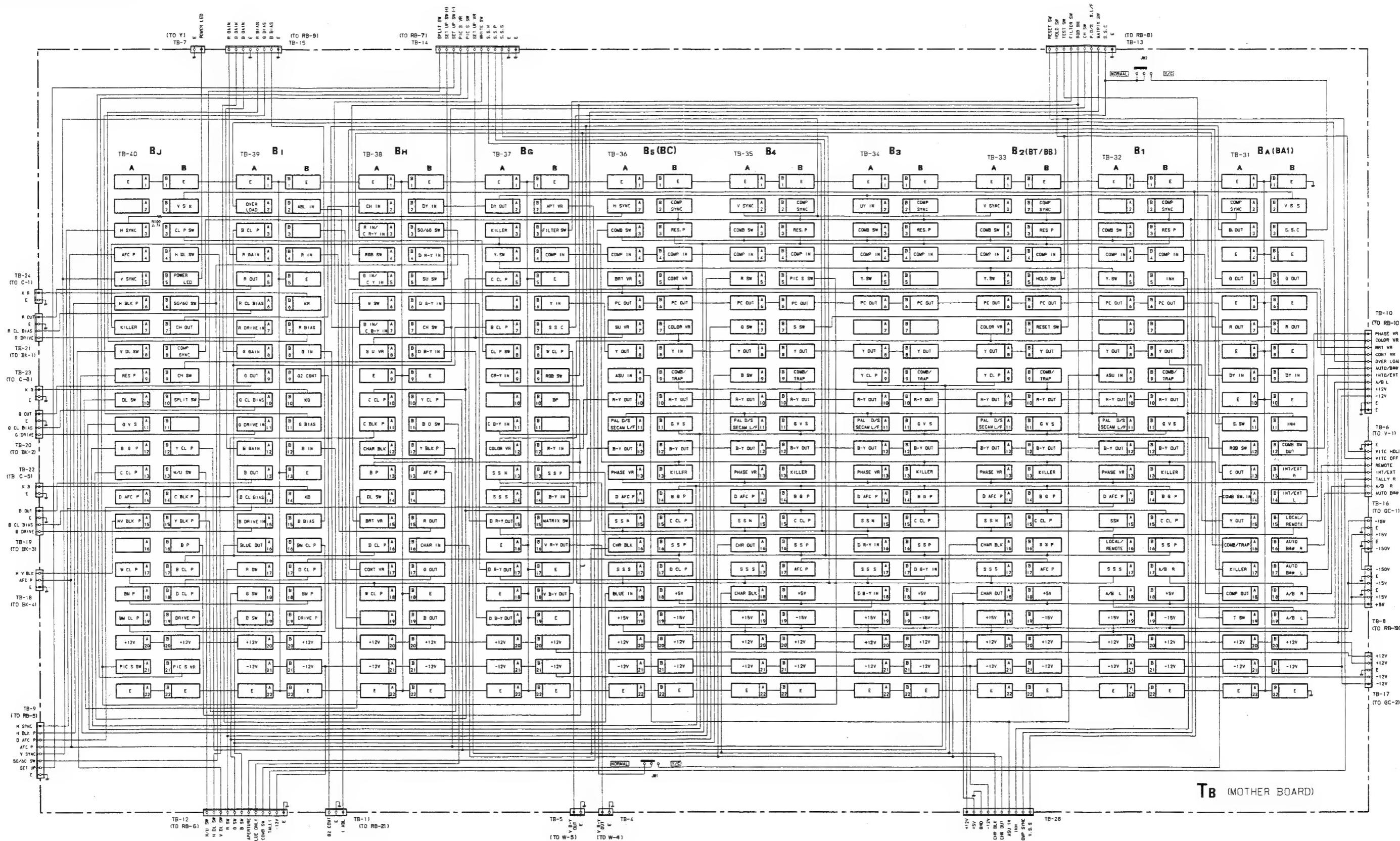
TB board (MOTHER BOARD)



Conductor side pattern
Component side pattern

TB TB

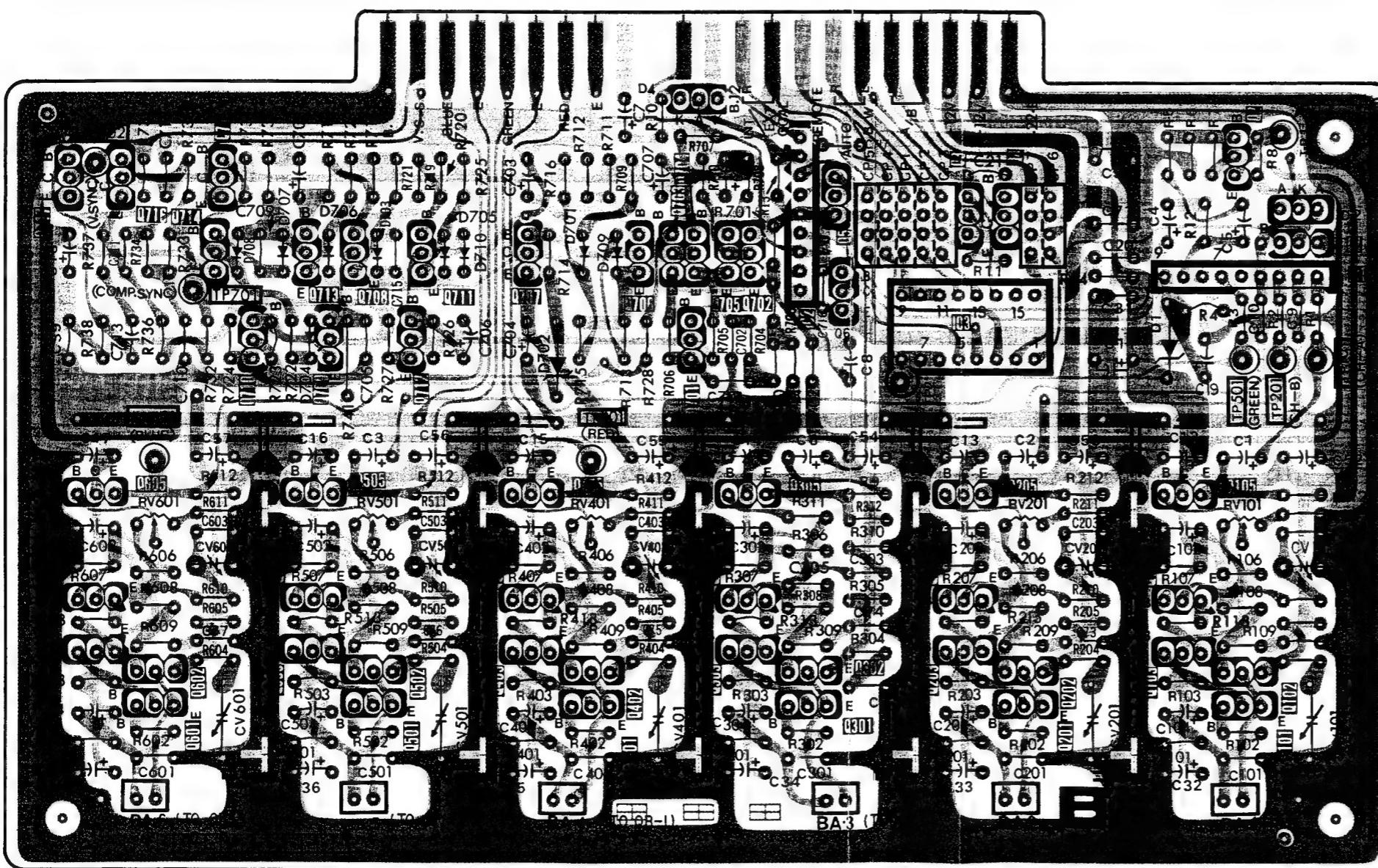
TB board (MOTHER BOARD)



BA **BA**

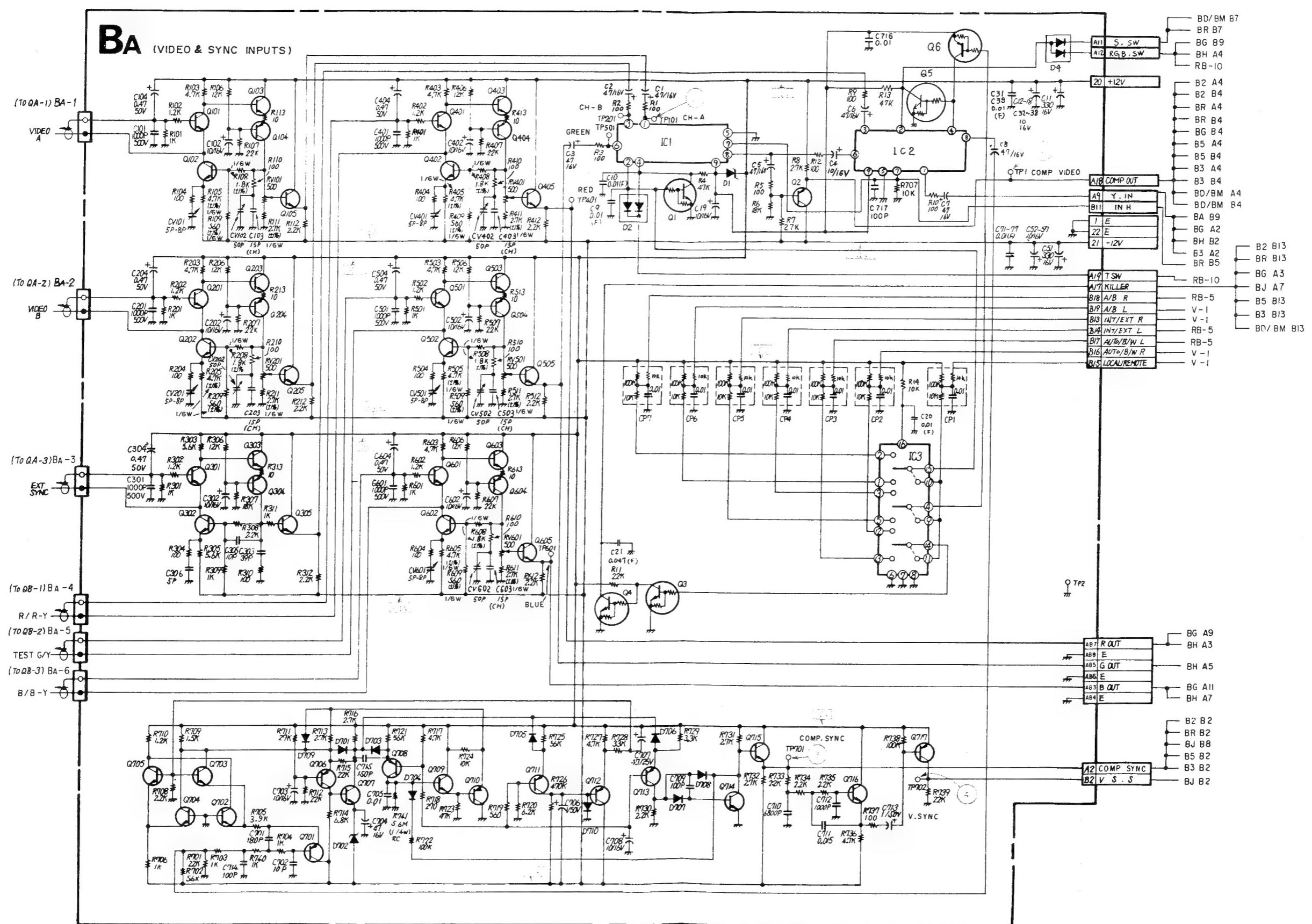
BA board (SYNC SELECT & SYNC SEP, HOOK UP)

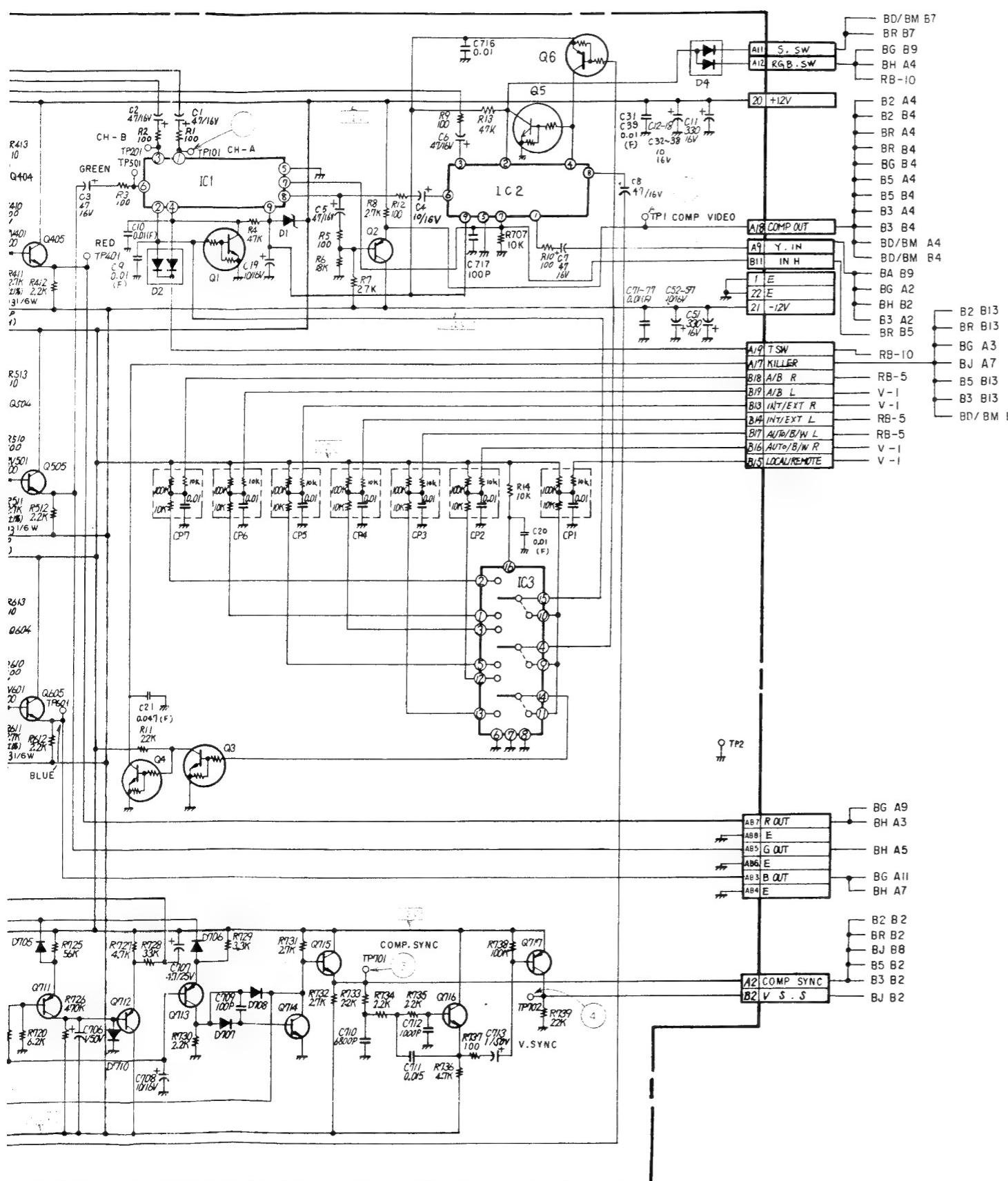
IC	2										3			4		5		6																				
	717	716	715	714	713	708	711	707	706	703	705	702	701	704	705	702	701	704	705	702	701																	
Q	605		505		504		502		403	402	401			305	304			205	204	203	202	201																
	604		503		501									303	302	301		205	204	203	202	201																
Q	603	602	601															105	104	103	102	101																
D					708	707	706	703	705	710	704	702	701	709	708	707	706	705	704	703	702	701																
TP ADJ	TP702		TP601		TP701		RV501		CV502		TR401		RV401		CV402		CV401		TP2		RV201		CV202		CV201		TP501		TP201		TP101		RV101		CV102		CV101	



- Conductor side pattern
 - Component side pattern

BA board (SYNC SELECT & SYNC SEP, HOOK UP)

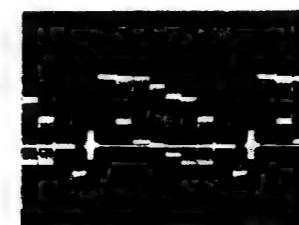




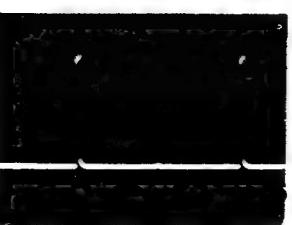
BA BOARD

IC1	CX894	INPUT SELECT
2	CX894	SYNC SELECT
3	MC14053BCP	LOCAL/REMOTE SW
Q1	DTC144ES	INPUT SELECT CONTROL
2	2SA844	BUFF
3	DTC144ES	KILLER
4	DTC144ES	KILLER
5	DTC144ES	SYNC SELECT CONTROL
6	DTA144ES	INT/EXT CONTROL
101	2SC2668	VIDEO A AMP
102	2SC2668	VIDEO A AMP
103	2SC2668	VIDEO A AMP
104	2SA844	VIDEO A AMP
105	2SC2668	VIDEO A AMP
201	2SC2668	VIDEO B AMP
202	2SC2668	VIDEO B AMP
203	2SC2668	VIDEO B AMP
204	2SA844	VIDEO B AMP
205	2SC2668	VIDEO B AMP
301	2SC2668	EXT SYNC AMP
302	2SC2668	EXT SYNC AMP
303	2SC2668	EXT SYNC AMP
304	2SA844	EXT SYNC AMP
305	2SC2668	EXT SYNC AMP
401	2SC2668	R-Y/R AMP
402	2SC2668	R-Y/R AMP
403	2SC2668	R-Y/R AMP
404	2SA844	R-Y/R AMP
405	2SC2668	R-Y/R AMP
501	2SC2668	TEST/Y/G AMP
502	2SC2668	TEST/Y/G AMP
503	2SC2668	TEST/Y/G AMP
504	2SA844	TEST/Y/G AMP
505	2SC2668	TEST/Y/G AMP
601	2SC2668	B-Y/B AMP
602	2SC2668	B-Y/B AMP

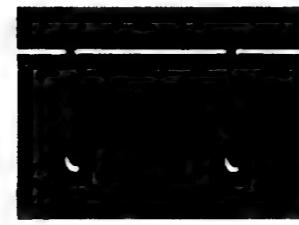
Q603	2SC2668	B-Y/B AMP
604	2SA844-E	B-Y/B AMP
605	2SC2668	B-Y/B AMP
701	2SA1048	SYNC AGC
702	2SC2785	SYNC AGC
703	2SC2785	SYNC AGC
704	2SC2785	SYNC AGC
705	2SC2785	SYNC AGC
706	2SA1115	SYNC AGC
707	2SC3068	SYNC AGC
708	2SA1115	SYNC AGC
709	2SC2785	SYNC AGC
710	2SA1115	SYNC AGC
711	2SA1115	SYNC AGC
712	2SA1115	SYNC AGC
713	2SA1115	COMP SYNC SEP
714	2SC2785	COMP SYNC SEP
715	2SC3068	COMP SYNC SEP
716	2SC3068	V SYNC SEP
717	2SA1115	V SYNC SEP
D1	RD3.0E-B	+9V REG
2	MC921	INPUT SELECT CONTROL
4	MC911	SYNC SELECT CONTROL
701	ISS119	SYNC AGC
702	RD4.3E-B	-7.5V REG
703	ISS119	SYNC AGC
704	ISS119	SYNC AGC
705	ISS119	SYNC AGC
706	ISS119	SYNC AGC
707	ISS119	COMP SYNC SEP
708	ISS119	COMP SYNC SEP
709	ISS119	SYNC AGC
710	ISS119	SYNC AGC



1 1Vp-p (H)
2 1Vp-p (H)



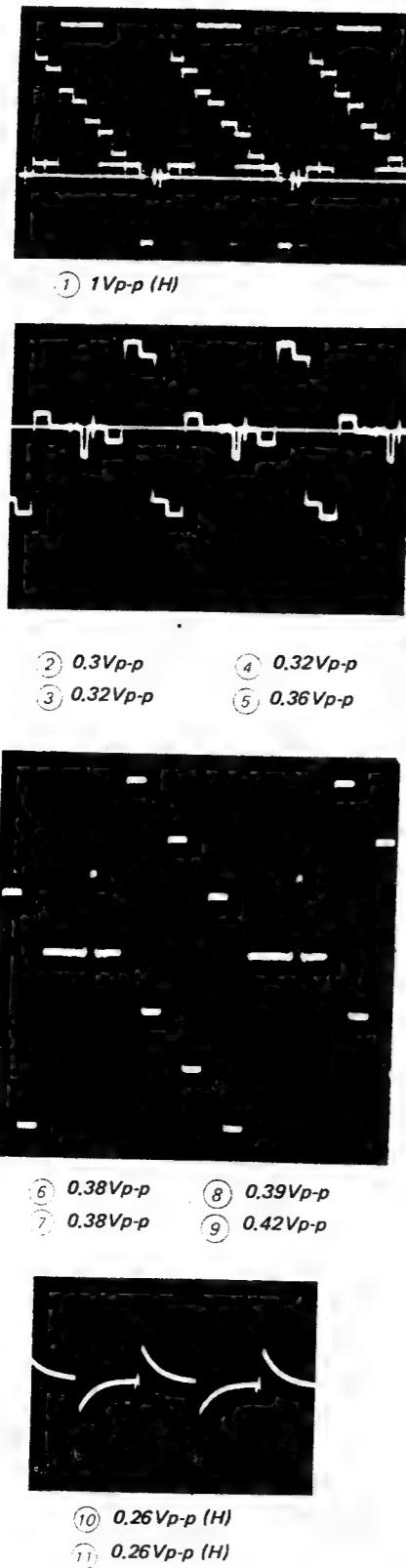
12 Vp-p (V)



3 12Vp-p (H)

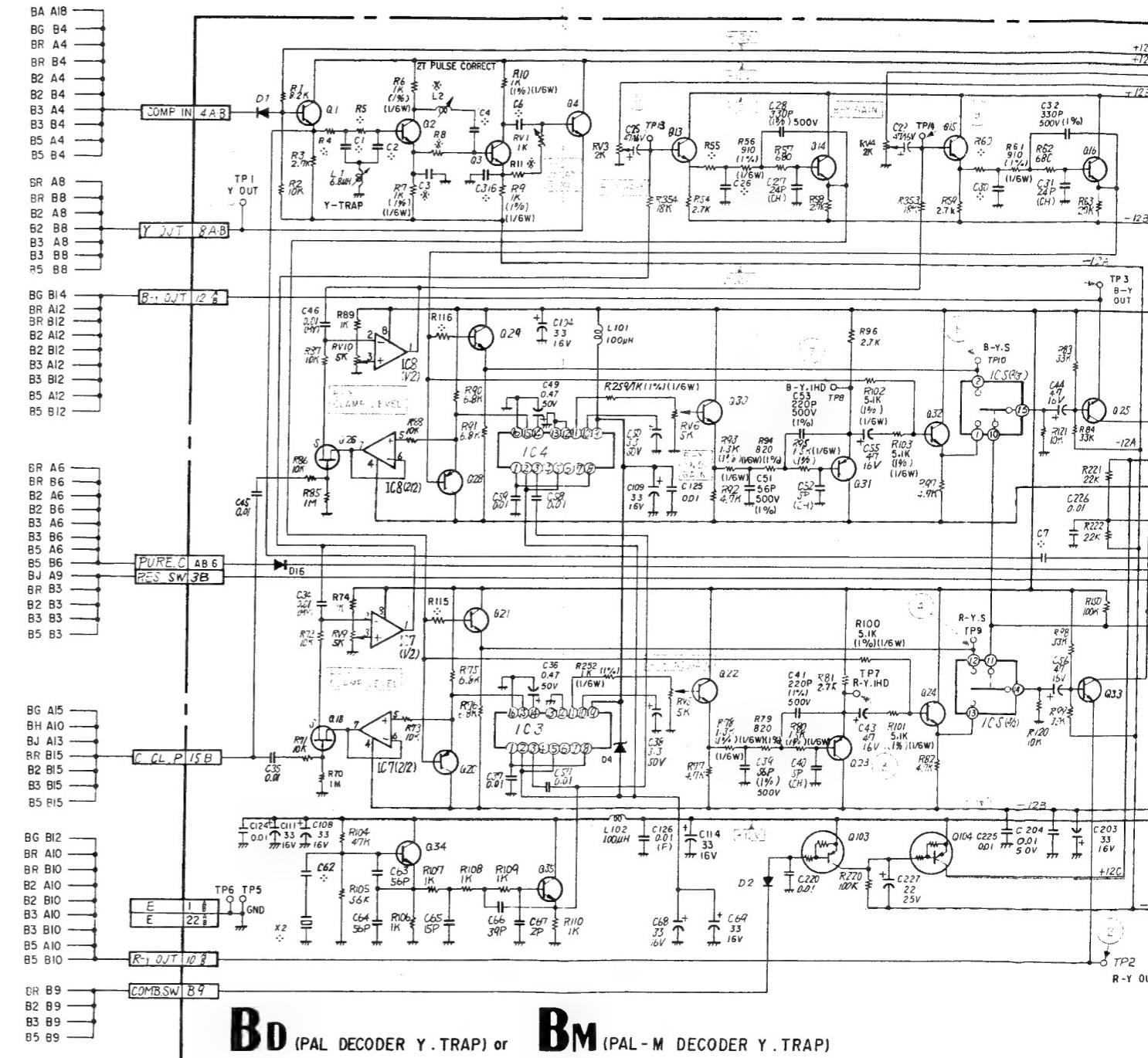
BD board (PAL DECODER Y.TRAP)
BM board (PAL-M DECODER Y.TRAP)

5. DIAGRAMS



NOTE

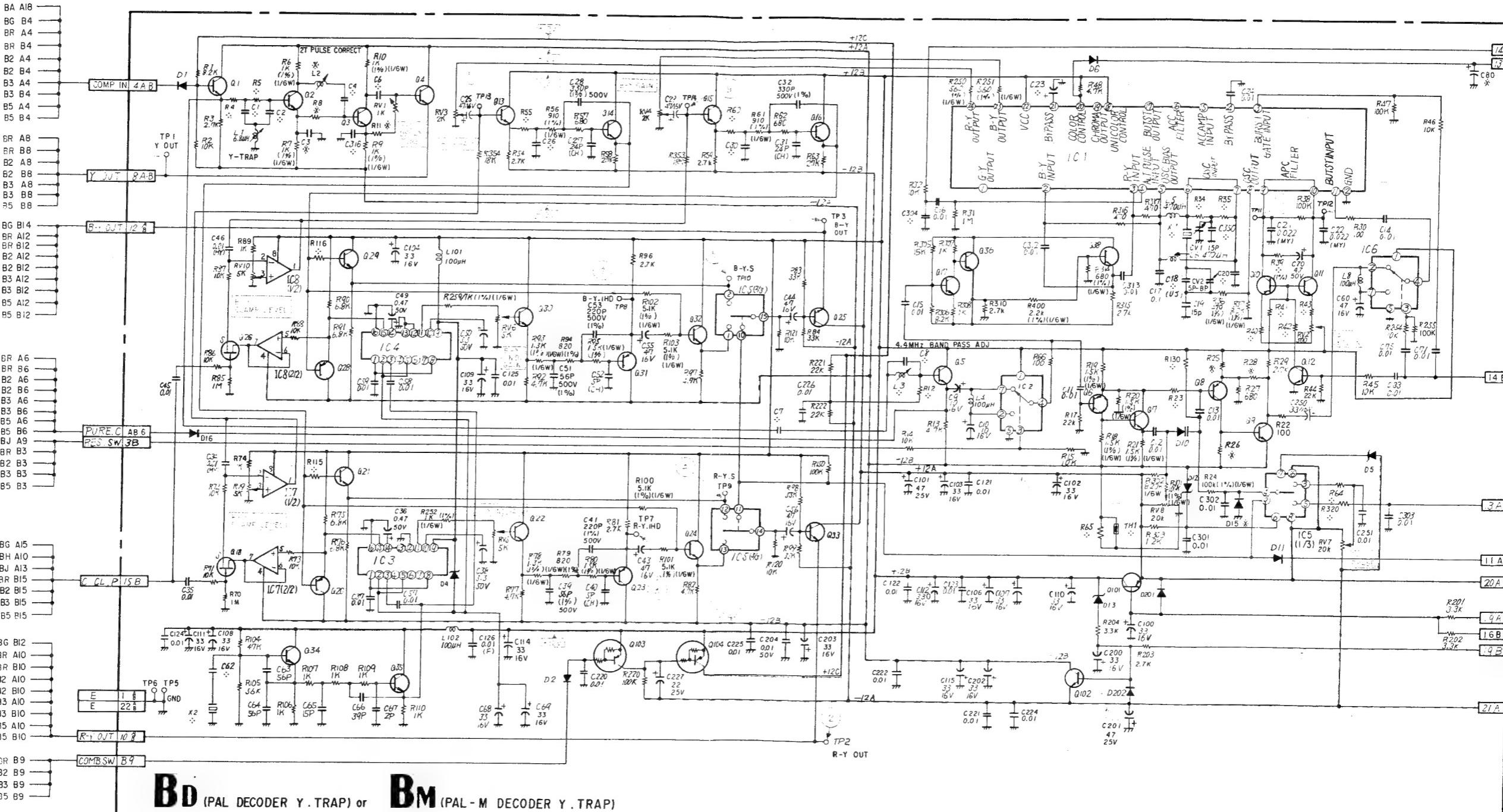
Model Ref	BD (PAL)	BM (PAL-M)
C1	10P 0.5P 50V	15P 5% 50V
C2	10P 0.5P 50V	15P 5% 50V
C3	33PF 5% 50V	—
C4	47P 5% 50V	39P 5% 50V
C6	68P 5% 50V	56P 5% 50V
C7	33P 5% 50V	39P 5% 50V
C8	6P 0.5P 50V	2P 0.25P 50V
C19	1-102-668-00 15P 5% (RH) 50V	1-102-880-00 15P 5% (UJ) 50V
C20	68P 5% (UJ) 50V	56P 5% (UJ) 50V
C23	ELECT 1 20% 50V	FILM 0.01 5% 50V
C26	160P 1% 500V	130P 1% 500V
C30	160P 1% 500V	130P 1% 500V
C62	24P 5% 50V	JW
C80	—	1 20% 60V
C304	10P 0.5P 50V	—
C316	2P 0.25P 50V	10P 0.5P 50V
C350	33P 5% (UJ) 50V	22P 5% (UJ) 50V
D15	—	1SS119
L3	33μH	68μH
R4	1.5K 1% 1/6W	1K 1% 1/6W
R5	82 1% 1/6W	110 1% 1/6W
R8	1.2K 1% 1/6W	1.8K 1% 1/6W
R11	56 1% 1/6W	130 1% 1/6W
R12	1.8K 1% 1/6W	2.2K 1% 1/6W
R23	6.8K 1% 1/6W	5.6K 1% 1/6W
R28	1.8K 5% 1/4W	3.3K 5% 1/4W
R34	270 1% 1/6W	680 1% 1/6W
R35	270 1% 1/6W	680 1% 1/6W
R40	1K 1% 1/6W	1K 5% 1/4W
R41	2.2K 1% 1/6W	2.2K 5% 1/4W
R42	10K 1% 1/6W	10K 5% 1/4W
R43	1K 1% 1/6W	1K 5% 1/4W
R55	750 1% 1/6W	910 1% 1/6W
R60	750 1% 1/6W	910 1% 1/6W
R64	220K 1% 1/6W	1K 5% 1/4W
R65	3.9K 1% 1/6W	2.2K 1% 1/6W
R115	5.1K 1% 1/6W	2.2K 1% 1/6W
R116	5.1K 1% 1/6W	2.2K 1% 1/6W
R130	220K 1% 1/6W	470K 1% 1/6W
R309	10 5% 1/4W	—
R320	130K 1% 1/6W	360k 1% 1/6W
TH1	—	THERMISTOR S-10K
X1	4.43MHz	3.58MHz
X2	10.64MHz	10.717MHz
C113	ELECT 33 20% 16V	—
R25	6.8K 5% 1/4W	4.7K 5% 1/4W
R26	680 5% 1/4W	1.2K 5% 1/4W
R39	1.5K 1% 1/6W	2.2K 1% 1/6W
C18	13PF 5% 50V	15PF 5% 50V



BD or BM BD or BM

BD board (PAL DECODER Y.TRAP)
BM board (PAL-M DECODER Y.TRAP)

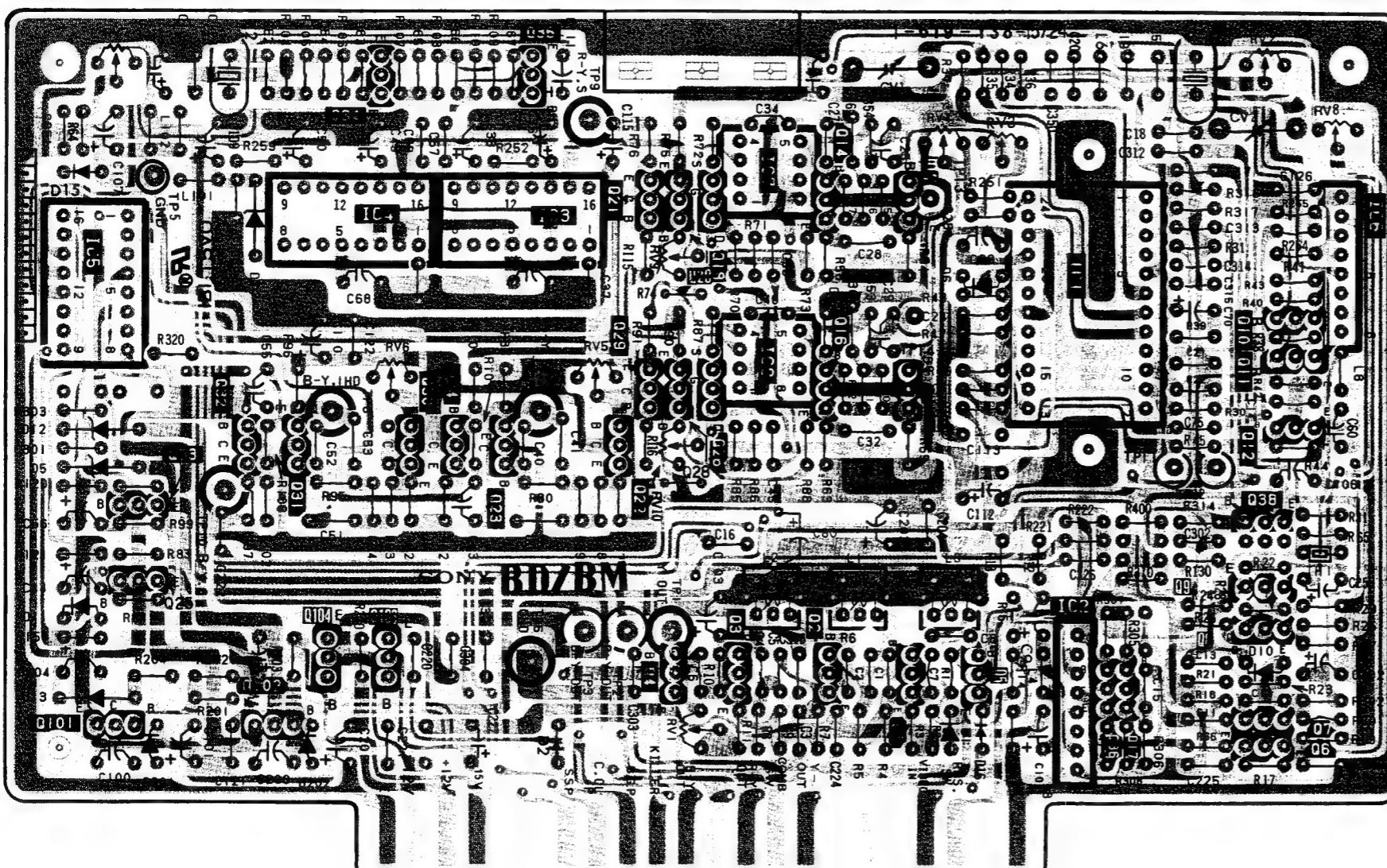
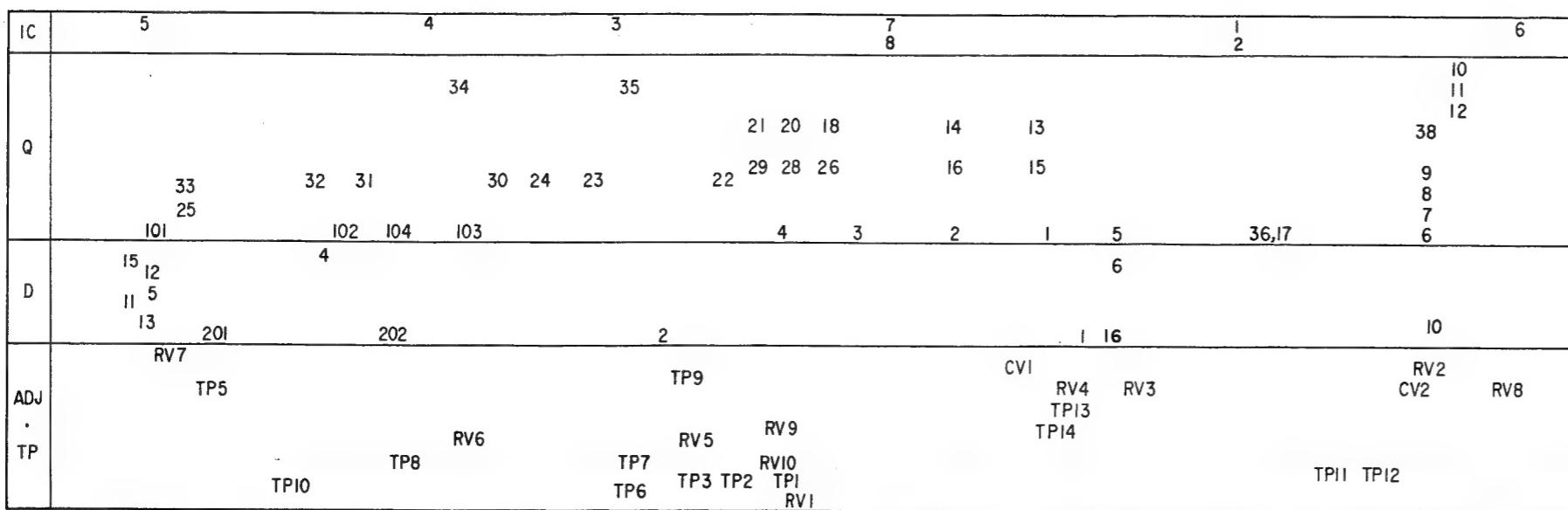
BM (PAL-M)		
15P	5%	50V
15P	5%	50V
—		
39P	5%	50V
56P	5%	50V
39P	5%	50V
2P	0.25P	50V
1-102-880-00		
15P	5% (UJ)	50V
56P	5% (UJ)	50V
FILM		
0.01	5%	50V
130P	1%	500V
130P	1%	500V
JW		
1	20%	50V
—		
10P	0.5P	50V
22P	5% (UJ)	50V
1SS119		
68μH		
1K	1%	1/6W
110	1%	1/6W
1.8K	1%	1/6W
130	1%	1/6W
2.2K	1%	1/6W
5.6K	1%	1/6W
3.3K	5%	1/4W
680	1%	1/6W
680	1%	1/6W
1K	5%	1/4W
2.2K	5%	1/4W
10K	5%	1/4W
1K	5%	1/4W
910	1%	1/6W
910	1%	1/6W
1K	5%	1/4W
2.2K	1%	1/6W
2.2K	1%	1/6W
2.2K	1%	1/6W
470K	1%	1/6W
—		
360K	1%	1/6W
THERMISTOR S-10K		
3.58MHz		
10.717MHz		
—		
4.7K	5%	1/4W
1.2K	5%	1/4W
2.2K	1%	1/6W
15PF	5%	50V



BJ A	D-1
BR A4	B2 L
B3 A4	B3 A
B5 A4	B5 A
BA A8	BR A
BR B4	BG A
B2 A4	BR B
B3 A4	B3
B5 A4	B5 B
BR A8	BR E4
BR B8	B2 A4
B2 A8	B3 A4
B2 B8	B5 B
BR B14	BR E14
BR A12	B2 B4
BR B12	B3 A4
B2 A12	B5 B
B3 A12	BR E14
B5 A12	B2 B4
BR B16	B3 A4
BR A16	B5 B
BR E16	BR E14
B2 B16	B2 B4
B3 B16	B3 A4
B5 B16	B5 B
HB-4	BR A13
BR A13	B2 A13
B3 A13	B3 A13
B5 A13	B5 A13
HB-2	BR B13
BR B13	B2 B13
B3 B13	B3 B13
B5 B13	B5 B13
HB-1	BR E13
BR E13	B2 E13
B3 E13	B3 E13
B5 E13	B5 E13
HB-0	BR E14
BR E14	B2 E14
B3 E14	B3 E14
B5 E14	B5 E14
HB-2	BR A12
BR A12	B2 A12
B3 A12	B3 A12
B5 A12	B5 A12
HB-1	BR B12
BR B12	B2 B12
B3 B12	B3 B12
B5 B12	B5 B12
HB-0	BR E12
BR E12	B2 E12
B3 E12	B3 E12
B5 E12	B5 E12
HB-2	BR A11
BR A11	B2 A11
B3 A11	B3 A11
B5 A11	B5 A11
HB-1	BR B11
BR B11	B2 B11
B3 B11	B3 B11
B5 B11	B5 B11
HB-0	BR E11
BR E11	B2 E11
B3 E11	B3 E11
B5 E11	B5 E11
HB-2	BR A10
BR A10	B2 A10
B3 A10	B3 A10
B5 A10	B5 A10
HB-1	BR B10
BR B10	B2 B10
B3 B10	B3 B10
B5 B10	B5 B10
HB-0	BR E10
BR E10	B2 E10
B3 E10	B3 E10
B5 E10	B5 E10
HB-2	BR A9
BR A9	B2 A9
B3 A9	B3 A9
B5 A9	B5 A9
HB-1	BR B9
BR B9	B2 B9
B3 B9	B3 B9
B5 B9	B5 B9
HB-0	BR E9
BR E9	B2 E9
B3 E9	B3 E9
B5 E9	B5 E9

BD or BM BD or BM

BD board (PAL DECODER Y. TRAP) 1-619-138-15
 BM board (PAL-M DECODER Y. TRAP) 1-619-138-24



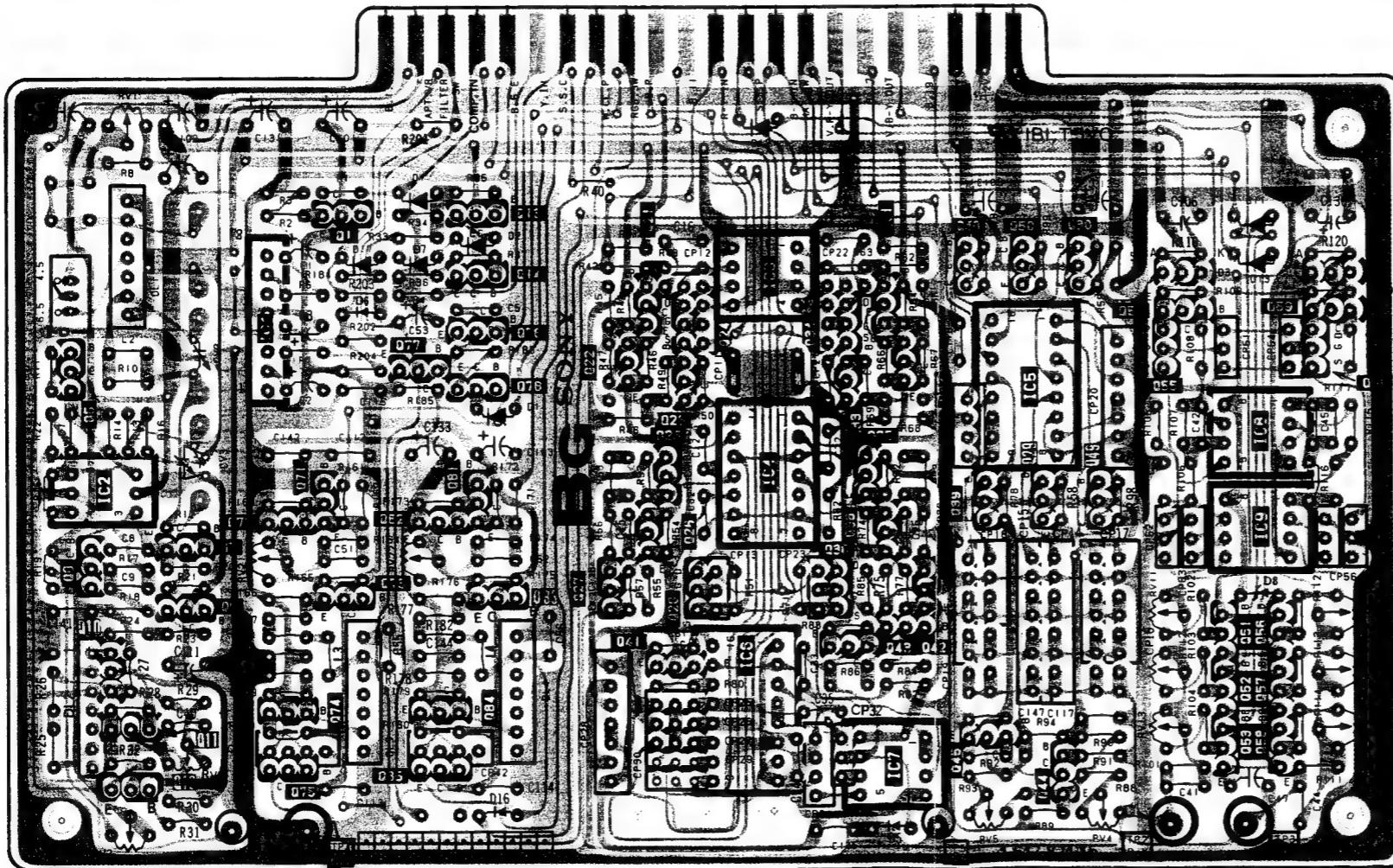
IC1	TA7193P	PAL DEMODULATOR
2	LA7016	RESIDUAL SWITCH
3	TL8608P	1H DELAY LINE
4	TL8608P	1H DELAY LINE
5	MC14053BCP	ANALOG SWITCHER
6	LA7016	BURST GATE
7	RC4558P	R-Y CLAMP
8	RC4558P	B-Y CLAMP
Q1	2SC403SP	BUFFER
2	2SC403SP	ACTIVE FILTER
3	2SC403SP	Y-DELAY CORRECTOR
4	2SC3068	BUFFER
5	2SC3068	BUFFER
6	2SA844	PHASE CONTROLLER
7	2SC403SP	PHASE CONTROLLER
8	2SA844	PHASE CONT. AMP.
9	2SC403SP	PHASE CONT. AMP.
10	2SA1175	APL FILTER
11	2SA1175	APL FILTER
12	2SC403SP	APL FILTER SWITCH
13	2SC403SP	R-Y L.P.F
14	2SC403SP	R-Y L.P.F
15	2SC403SP	B-Y L.P.F
16	2SC403SP	B-Y L.P.F
17	2SC403SP	AMPLIFIER
18	2SK381	R-Y CLAMP
20	2SA1175	BUFFER
21	2SC403SP	BUFFER
22	2SC403SP	CCD OUT L.P.F
23	2SA844	CCD OUT L.P.F
24	2SC403SP	BUFFER
25	2SC3068	BUFFER
26	2SK381	B-Y CLAMP
28	2SA1175	BUFFER
29	2SC403SP	BUFFER
30	2SC403SP	CCD OUT L.P.F
31	2SA1175	CCD OUT L.P.F
32	2SC403SP	BUFFER
33	2SC3068	BUFFER
34	2SC403SP	CCD CLOCK GEN
35	2SC403SP	CCD CLOCK GEN
36	2SC403SP	BUFFER
38	2SC403SP	BUFFER
101	2SB734	SYSTEM SWITCH
102	2SD789	SYSTEM SWITCH
103	DTA124ES	COMB. SWITCH
104	DTA124ES	COMB. SWITCH
D1	1SS119	SYSTEM SWITCH
2	1SS119	COMB. SWITCH
4	RD3.0EB1	CCD BIAS
5	RD9.1EB2	SWITCH BIAS
6	1SS119	KILLER SWITCH
10	1T25	PHASE CONTROL
11	1SS119	PAL S/D SWITCH
12	RD12EB2	PHASE SWITCH
13	RD12EB2	SYSTEM SWITCH
15	1SS119	
16	1SS119	COMB SW
201	1SS119	PROTECTOR
202	1SS119	PROTECTOR

Conductor side pattern
 Component side pattern

BG BG

BG board (COLOR GAIN CONTROL, COMPONENT R-Y AMP & DELAY, APERTURE CONTROL,
Y DELAY, VECTOR OUT, NTSC MATRIX SW, G-Y MATRIX AMP)

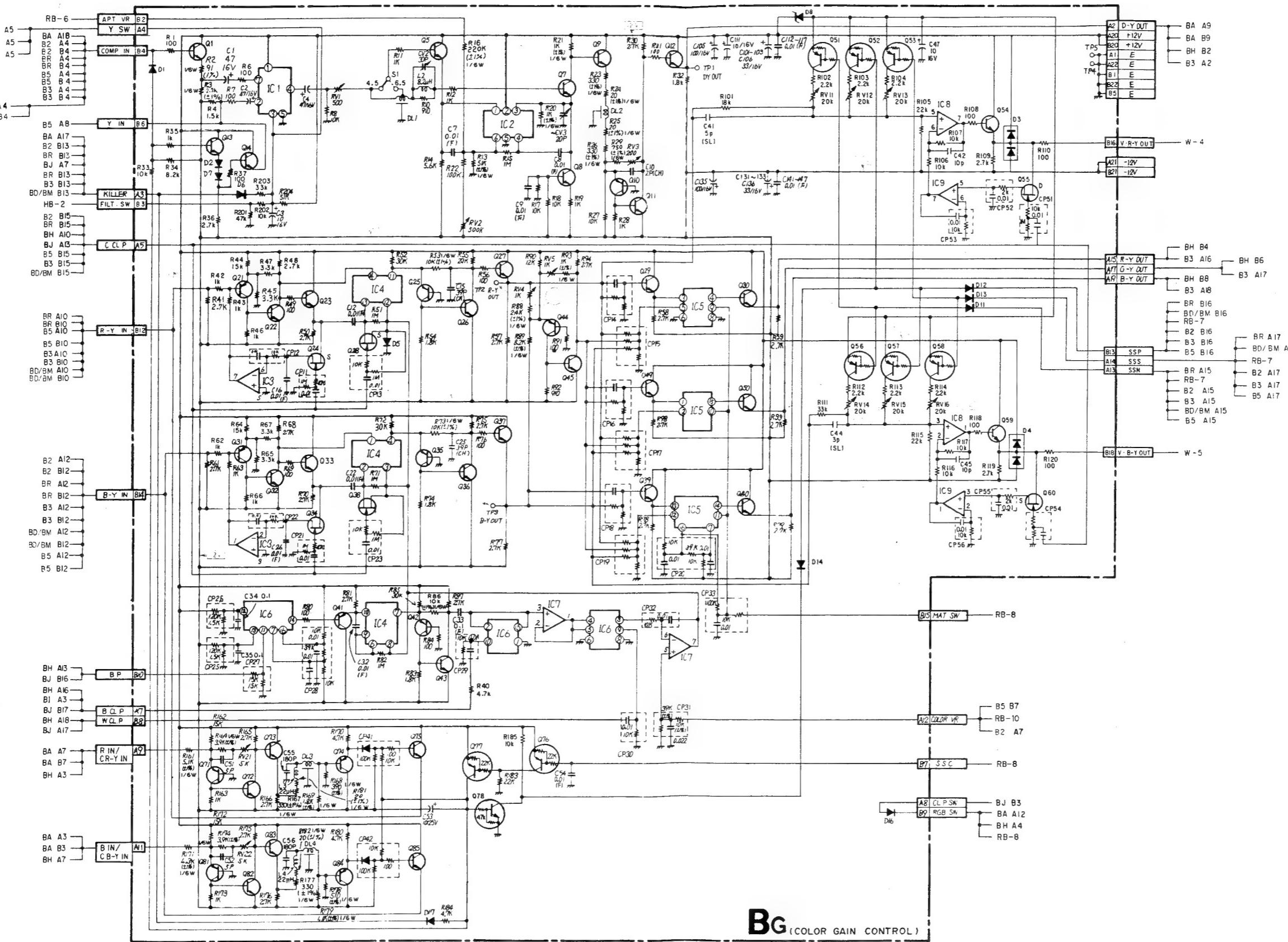
IC	1	3 4	5	8 9
Q	13 14 76 78 21 22 23 24 34 33 35 36 37 38 42 43 45 49 50 54 55 56 57 58	6	7	40 50 30 59 60
D	1 2 17 6 15 16	12	3	11 13 4
TP ADJ	RVI CV2 CV3 RV3 RV21 RV22 RV2 TP1 TP4	TP5 RV5 RV4 TP2 TP3	RVII RV12 RV15 RV13 RV16	RV14



- : Conductor side pattern
- : Component side pattern

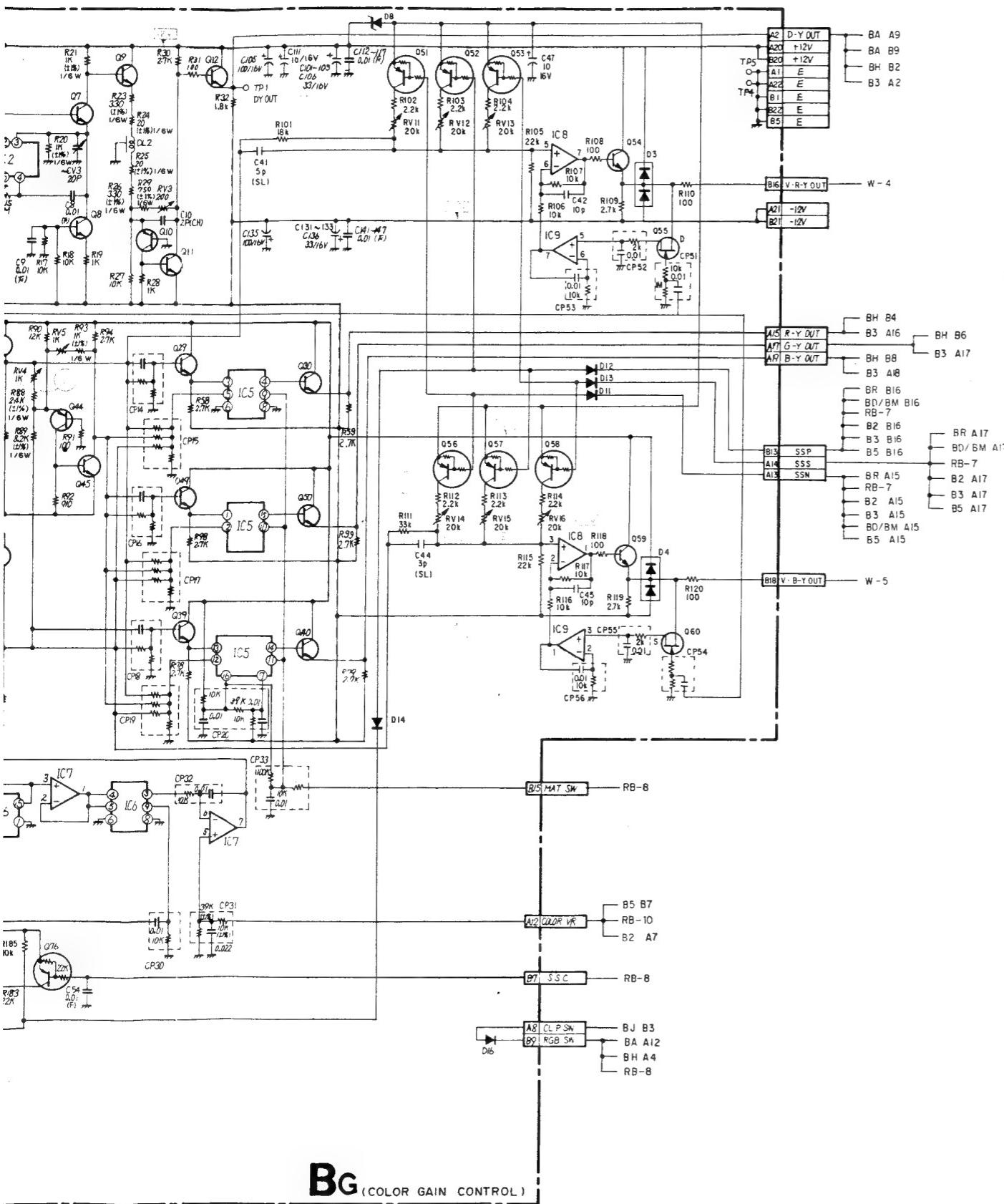
BG BG

BG board (COLOR GAIN CONTROL, COMPONENT R-Y AMP & DELAY, APERTURE CONTROL,
Y DELAY, NTSC MATRIX SW, G-Y MATRIX AMP)



BG BO.
Q1
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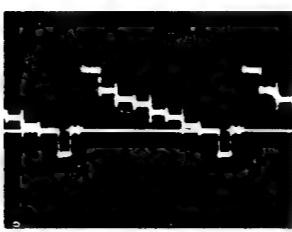
BG (COLOR GAIN CONTROL)



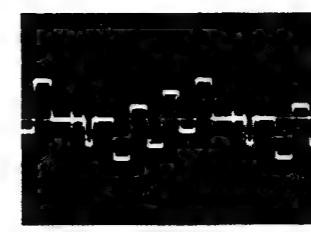
BG BOARD

IC1	LA7016	FILTER SW
2	TX-429M	APERTURE
3	RC4558DQ	COLOR DIFFERENCE CLAMP
4	CX-718D	CHROMA CONTROL
5	MC14053BCP	MATRIX SW
6	MC14053BCP	CHROMA CONTROL
7	TL082CF	CHROMA CONTROL
8	TL082CP	VECTOR OUTPUT
9	TL082CP	VECTOR OUTPUT
Q1	2SC403SP	BUFF
5	2SC403SP	APERTURE
7	2SC403SP	APERTURE
8	2SC403SP	APERTURE
9	2SC403SP	Y DELAY
10	2SA844	Y AMP
11	2SC403SP	Y AMP
12	2SC403SP	Y AMP
13	2SC403SP	BUFF
14	2SC3068	BUFF
21	2SA844	R-Y AMP
22	2SC403SP	R-Y AMP
23	2SC403SP	R-Y CLAMP
24	2SK381	R-Y CLAMP
25	2SA844	R-Y CHROMA CONTROL
26	2SC403SP	R-Y CHROMA CONTROL
27	2SC403SP	R-Y CHROMA CONTROL
28	2SK381	R-Y CHROMA CONTROL
29	2SC403SP	R-Y BUFF
30	2SC403SP	R-Y BUFF
31	2SA844	B-Y AMP
32	2SC403SP	B-Y AMP
33	2SC403SP	B-Y CLAMP
34	2SK381	B-Y CLAMP
35	2SA844	B-Y CHROMA CONTROL
36	2SC403SP	B-Y CHROMA CONTROL
37	2SC403SP	B-Y CHROMA CONTROL
38	2SK381	B-Y CHROMA CONTROL
39	2SC403SP	B-Y BUFF
40	2SC403SP	B-Y BUFF
41	2SA844	CHROMA CONTROL
42	2SA844	CHROMA CONTROL
43	2SC403SP	CHROMA CONTROL

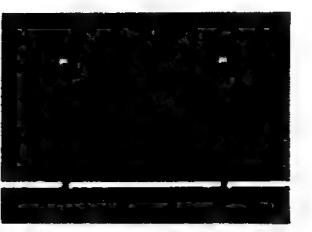
Q44	2SA844	CHROMA CONTROL
45	2SC403SP	CHROMA CONTROL
49	2SC403SP	G-Y BUFF
50	2SC403SP	G-Y BUFF
51	DTA124ES	GAIN CHANGE SW
52	DTA124ES	GAIN CHANGE SW
53	DTA124ES	GAIN CHANGE SW
54	2SC403SP	R-Y BUFF
55	2SK381	R-Y CLAMP
56	DTA124ES	GAIN CHANGE SW
57	DTA124ES	GAIN CHANGE SW
58	DTA124ES	GAIN CHANGE SW
59	2SC403SP	B-Y BUFF
60	2SK381	B-Y CLAMP
71	2SA844	R-Y AMP
72	2SC403SP	R-Y AMP
73	2SC403SP	R-Y AMP
74	2SA844	R-Y DELAY
75	2SC3068	R-Y BUFF
76	DTA124ES	COMPONENT SW
77	DTA124ES	COMPONENT SW
78	DTC144ES	COMPONENT SW
81	2SA844	B-Y AMP
82	2SC403SP	B-Y AMP
83	2SC403SP	B-Y AMP
84	2SA844	B-Y DELAY
85	2SC3068	B-Y BUFF
D1	1SS119	COMPONENT SW
2	1SS119	DC SHIFT SW
3	MC932	PROTECT
4	MC932	PROTECT
5	1SS119	PROTECT
6	RD6.2E2	DC SHIFT
7	1SS119	FILTER SW
8	RD6.2E-B	+6V REG
11	1SS119	GAIN CHANGE SW
12	1SS119	GAIN CHANGE SW
13	1SS119	GAIN CHANGE SW
14	1SS119	GAIN CHANGE SW
16	1SS119	R.G.B. SW
17	1SS119	KILLER



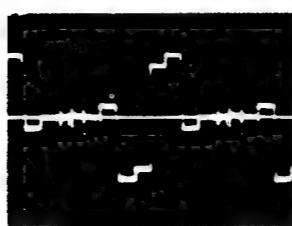
1.0Vp-p (H)



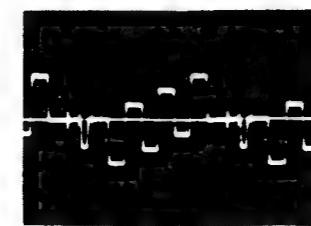
1.7Vp-p (H)



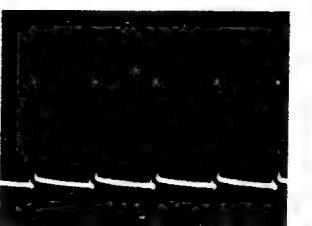
4.8Vp-p (H)



1.4Vp-p (H)



0.9Vp-p (H)

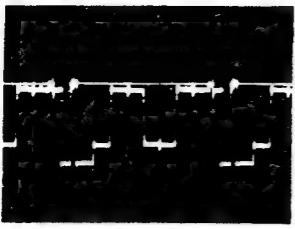


12Vp-p (H)

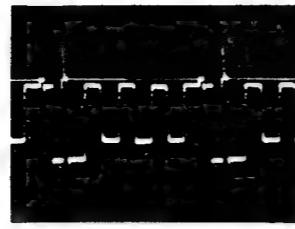
BH BOARD

IC1(1/3)		COMPOSITE/R.G.B. CHANGE SW
(2/3)	TC4053BP	SET UP & CROSS HATCH SW
(3/3)		SCREENING SW
2(1/3)		COMPOSITE/R.G.B. CHANGE SW
(2/3)	TC4053BP	SET UP SW
(3/3)		SCREENING SW
3(1/3)	TC4053BP	COMPOSITE/R.G.B. CHANGE SW
(2/3)		SET UP SW
(3/3)		SCREENING SW
4(1/3)	TC4053BP	COMPOSITE/R.G.B. CHANGE SW
(2/3)		SET UP SW
(3/3)		SCREENING SW
5	RC4558S	SAMPLE HOLD
6	RC4558S	SAMPLE HOLD
7	LA7016	BLUE ONLY SW
8	LA7016	BLUE ONLY SW
9	MC14053BCP	AGC PULSE, SET UP, WHITE, VITC INSERT GEN
10(1/2)	MC14053BCP	AGC PULSE, SET UP, WHITE, VITC INSERT GEN
(2/2)		COLOR DIFFERENCE & R.G.B. SCREENING PULSE GEN
11(1/4)		AGC PULSE, SET UP, WHITE, VITC INSERT GEN
(3/4)	MC14081BCP	COLOR DIFFERENCE & R.G.B. SCREENING PULSE GEN
(4/4)		Y SCREENING PULSE GEN
12	MC14081BCP	AGC PULSE, SET UP, WHITE, VITC INSERT GEN
13	MC14001BCP	AGC PULSE, SET UP, WHITE, VITC INSERT GEN
14	TC4030BP	AGC PULSE, SET UP, WHITE, VITC INSERT GEN
101	TX-429M	R CONTRAST CONTROL
102	TL082CP	R CONTRAST & BRIGHT CONTROL
201	TX-429M	G CONTRAST CONTROL
202	TL082CP	G CONTRAST & BRIGHT CONTROL
301	TX-429M	B CONTRAST CONTROL
302	TL082CP	B CONTRAST & BRIGHT CONTROL
Q1	2SC403SP	Y BUFF
2	2SK523	Y SAMPLE HOLD
3	2SA844	Y BUFF
4	2SC403SP	R-Y/R BUFF

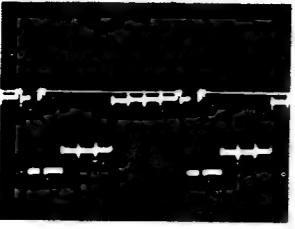
5. DIAGRAMS



0.8Vp-p (H)



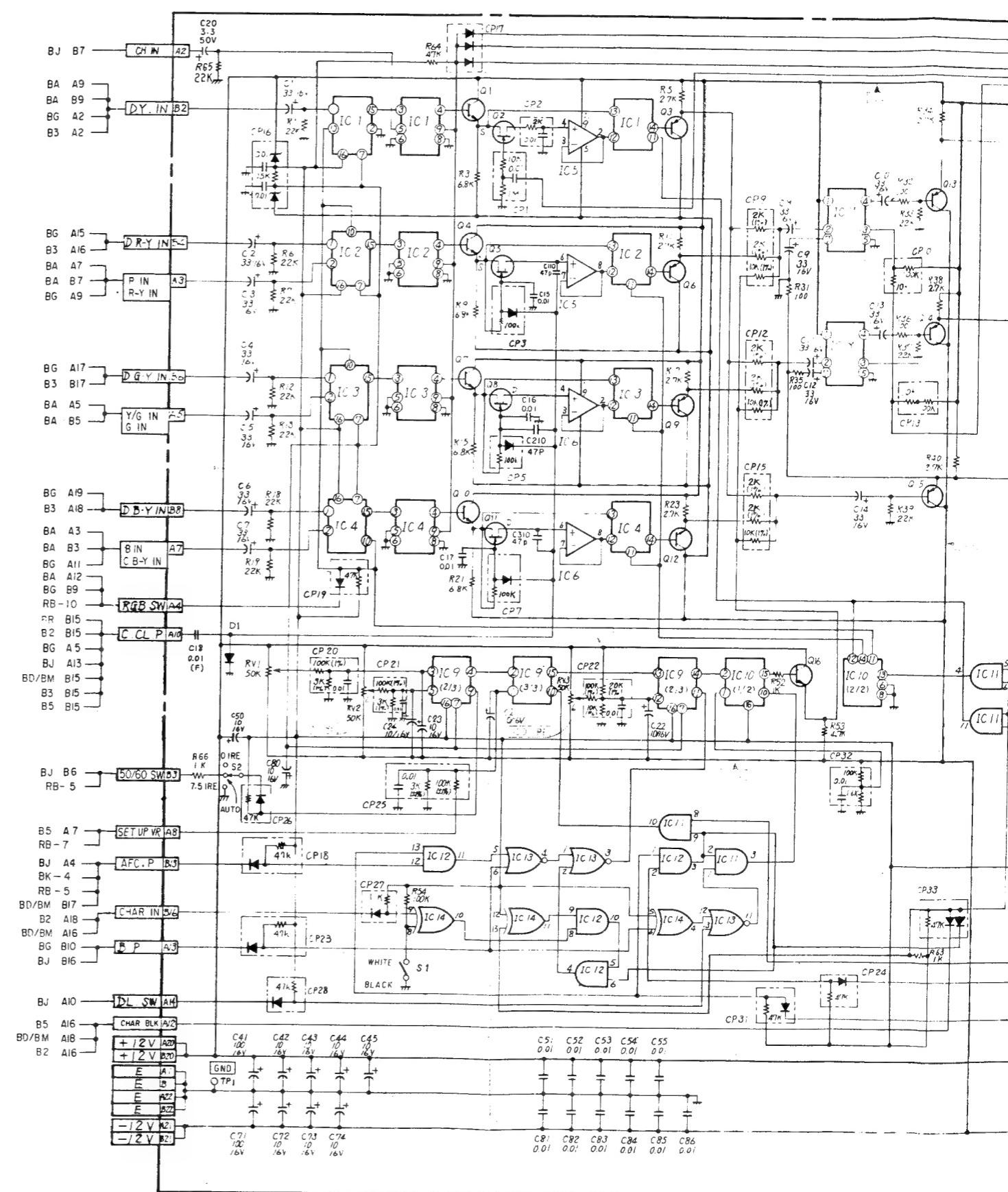
0.7Vp-p (H)



0.8Vp-p (H)

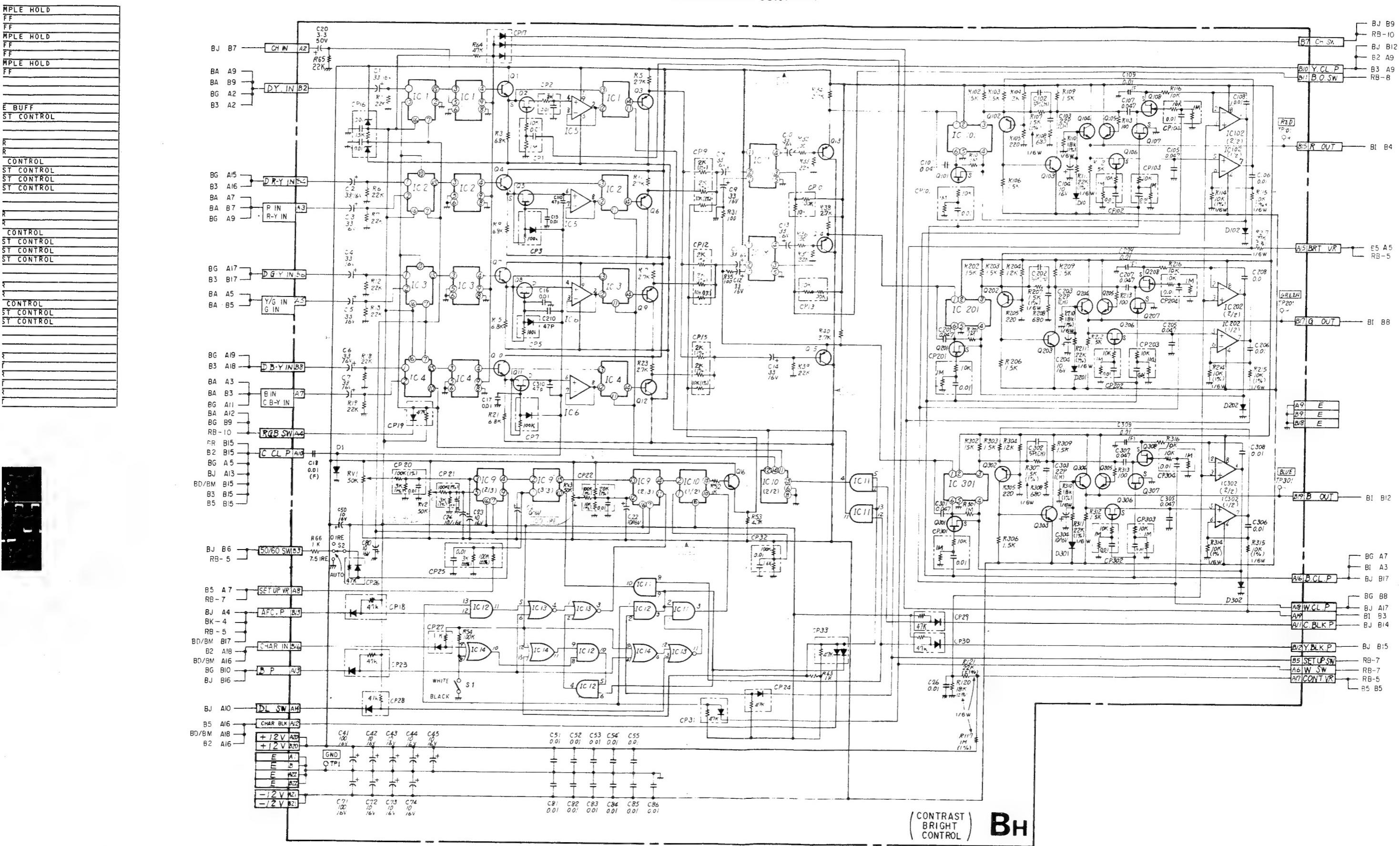
Q5	2SK523	R-Y/Y SAMPLE HOLD
6	2SA844	R-Y/R BUFF
7	2SC403SP	G-Y/R BUFF
8	2SK523	G-Y/Y SAMPLE HOLD
9	2SA844	G-Y/G BUFF
10	2SC403SP	B-Y/B BUFF
11	2SK523	B-Y/B SAMPLE HOLD
12	2SA844	R BUFF
13	2SA844	G BUFF
14	2SA844	B BUFF
15	2SC3068	AGC PULSE BUFF
16	2SK381	R CONTRAST CONTROL
101	2SK381	R AMP
102	2SA844	R LIMITER
103	2SC403SP	R BRIGHT CONTROL
104	2SC403SP	R CONTRAST CONTROL
105	2SK381	G CONTRAST CONTROL
106	2SK381	G AMP
107	2SK381	G LIMITER
108	2SK381	G BRIGHT CONTROL
201	2SK381	G CONTRAST CONTROL
202	2SA844	G AMP
203	2SC403SP	G LIMITER
204	2SC403SP	G BRIGHT CONTROL
205	2SK381	B CONTRAST CONTROL
206	2SK381	B AMP
207	2SK381	B LIMITER
208	2SK381	B BRIGHT CONTROL
301	2SK381	B CONTRAST CONTROL
302	2SA844	B AMP
303	2SC403SP	B LIMITER
304	2SC403SP	B BRIGHT CONTROL
305	2SK381	Y G IN
306	2SK381	G G IN
307	2SK381	B G IN
308	2SK381	B B CONTRAST CONTROL
D1	ISS119	R LIMITER
101	ISS119	R PROTECT
201	ISS119	G LIMITER
302	ISS119	G PROTECT
301	ISS119	B LIMITER
302	ISS119	B PROTECT

BH board (Y/COLOR DIFFERENCE/RGB SIGNAL SWITCHING, Y-C MATRIX, CONTRAST/BRIGHTNESS CONTROL)



BH BH

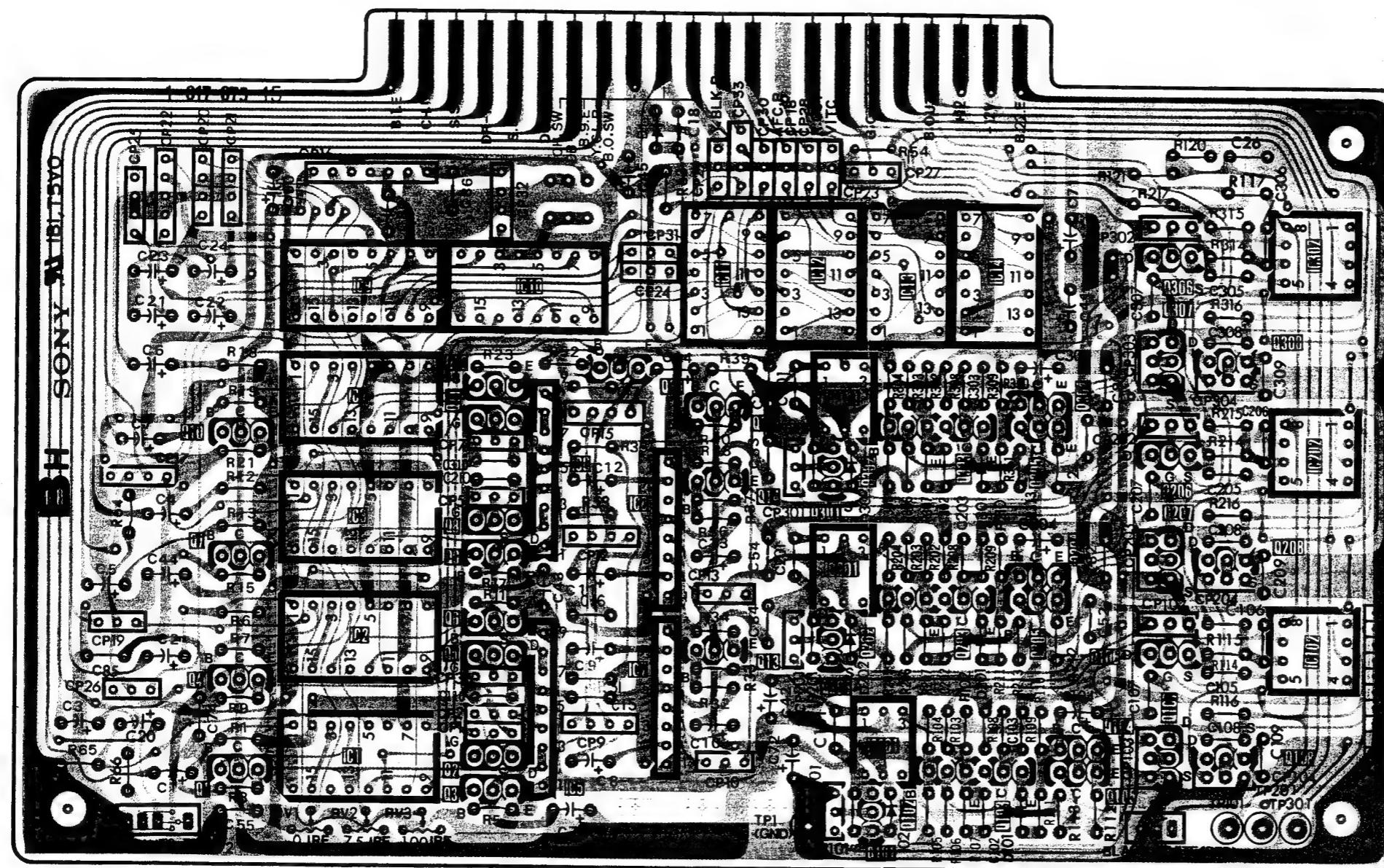
BH board (Y/COLOR DIFFERENCE/RGB SIGNAL SWITCHING, Y-C MATRIX, CONTRAST/BRIGHTNESS CONTROL)



BH BH

BH board (Y/COLOR DIFFERENCE/RGB SIGNAL SWITCHING, Y-C MATRIX, CONTRAST/BRIGHTNESS CONTROL)

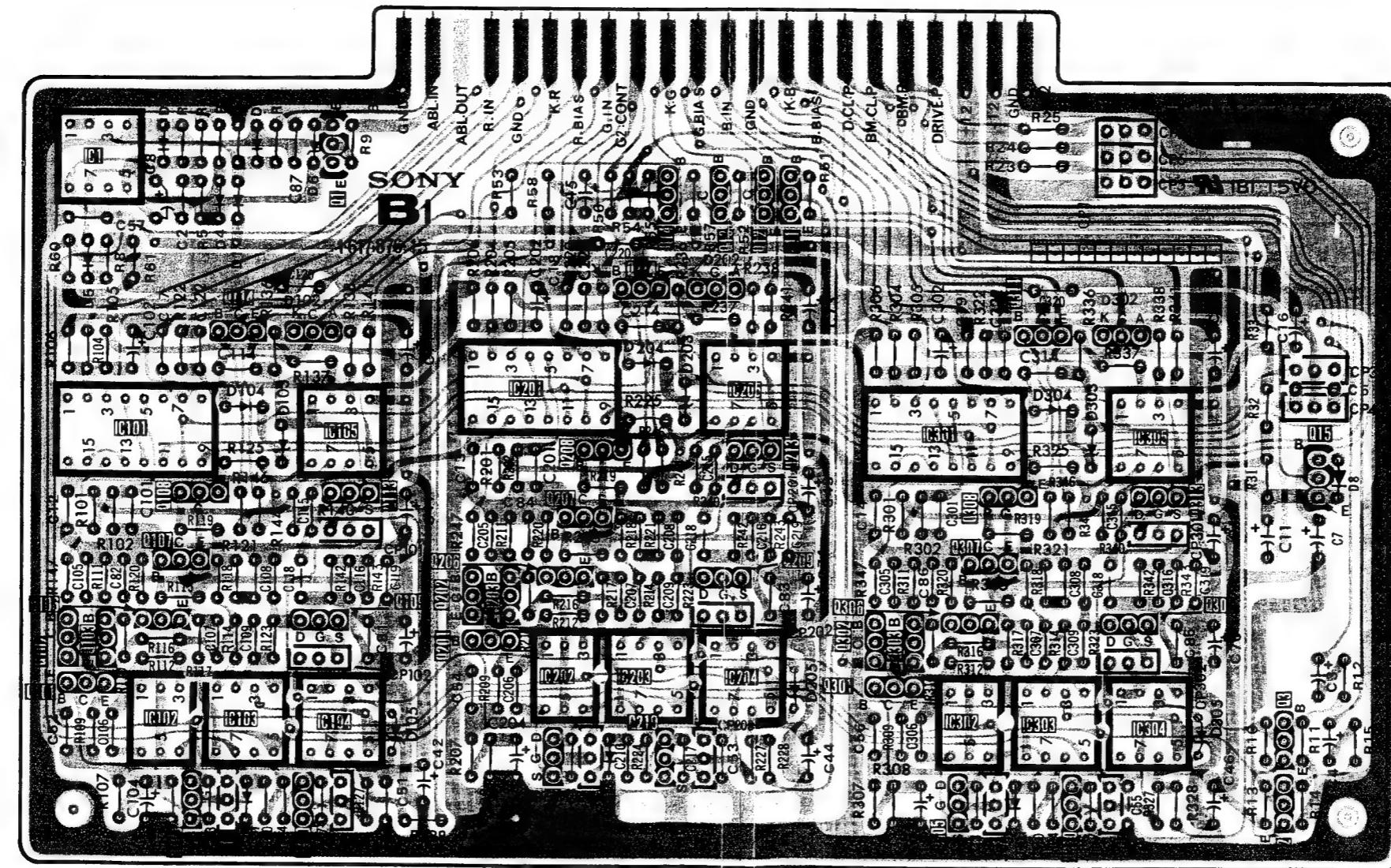
IC		9 4 3 2 1	10	11	12	13	14	
			6	8	301 201			202
			5	7	101			
Q		10	12 11 8 9 14	16	15	304 302 303 305	306 307 308 206 207 208	
		7	6		301	305 204 205	106	
		4	5	13	201	202 203	104 105	107 108
D		1			302 202 102	301 201 101		
TP ADJ		RV1 RV2 RV3		TP1			TP201 TP101 TP30i	



BI BI

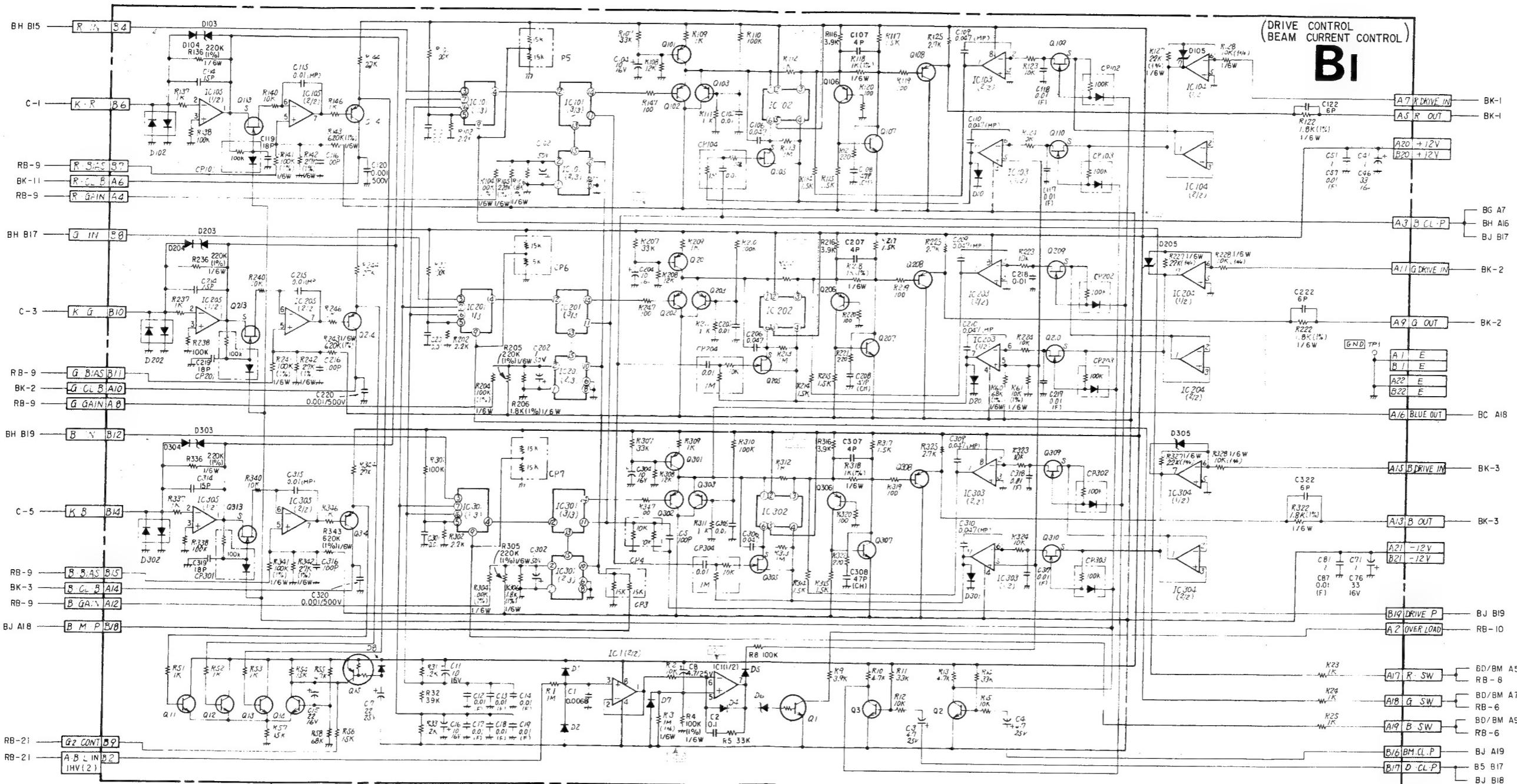
BI board (DRIVE CONTROL, BEAM CURRENT CONTROL)

IC	101	105	201	205	301	305
	102	103	104	202	203	204
Q	108 107 102 103 106 101 105	114 113 109 110	208 207 202 203 206 201 205	214 ¹⁴ 213 209 210	13 12 11 308 307 302 303 301 305	314 308 313 309 304 302 301 305 3
D	5	2 4 1 104 103 101	6 102 105	204 203 201	202 205	304 302 303 301 305 8
TP			TP 1			

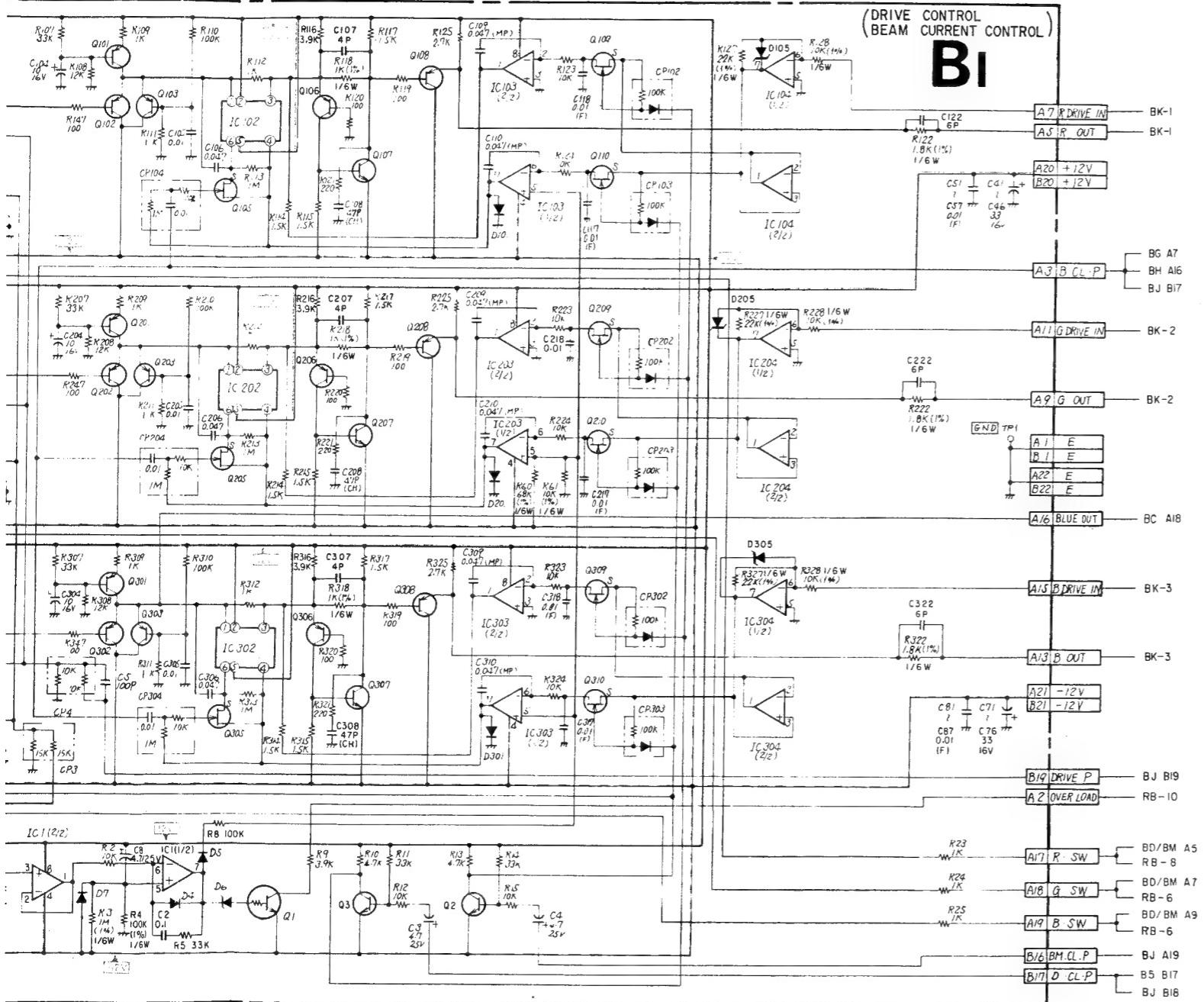


- : Conductor side pattern
- : Component side pattern

BI board (DRIVE CONTROL, BEAM CURRENT CONTROL)



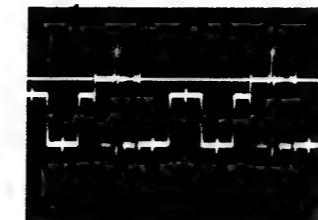
I C 1
101(1/2)
(2/3)
(3/4)
102
103(1/2)
(2/3)
104
105(1/2)
(2/3)
201(1/3)
(2/3)
(3/3)
202
203(1/2)
(2/2)
204
205(1/2)
(2/2)
301(1/3)
(2/3)
(3/3)
302
303(1/2)
(2/2)
304
305(1/2)
(2/2)
Q 1
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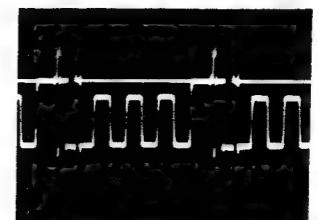
BI BOARD

IC1	RC4558DQ	ABL
101(1/3)	SCREEN OFF SW	
(2/3)	AGC PULSE GEN	
(3/3)	AGC PULSE INSERT	
102	TX-429M	GAIN CONTROL
103(1/2)	TL082CP	GAIN CONTROL
(2/2)		BIAS CONTROL
104	TL082CP	AMP
105(1/2)	TL082CP	I-V CONVERTER
(2/2)		CURRENT FEEDBACK CONTROL
201(1/3)	TC4053BP	SCREEN OFF SW
(2/3)	AGC PULSE GEN	
(3/3)	AGC PULSE INSERT	
202	TX-429M	GAIN CONTROL
203(1/2)	TL082CP	GAIN CONTROL
(2/2)		BIAS CONTROL
204	TL082CP	AMP
205(1/2)	TL082CP	I-V CONVERTER
(2/2)		CURRENT FEEDBACK CONTROL
301(1/3)	TC4053BP	SCREEN OFF SW
(2/3)	AGC PULSE GEN	
(3/3)	AGC PULSE INSERT	
302	TX-429M	GAIN CONTROL
303(1/2)	TL082CP	GAIN CONTROL
(2/2)		BIAS CONTROL
304	TL082CP	AMP
305(1/2)	TL082CP	I-V CONVERTER
(2/2)		CURRENT FEEDBACK CONTROL
Q1	DTC143TS	OVER LOAD LED DRIVE
2	2SC403SP	PULSE SHAPING
3	2SC403SP	PULSE SHAPING
11	2SC2878	G2 CONTROL
12	2SC2878	G2 CONTROL
13	2SC2878	G2 CONTROL
14	2SC2878	G2 CONTROL
15	DTA144ES	G2 CONTROL
101	2SA844	LIMITER
102	2SA844	LIMITER
103	2SA844	LIMITER
105	2SK381	GAIN CONTROL
106	2SA844	AMP
107	2SC2668	AMP
108	2SA844	AMP
109	2SK381	SAMPLE-HOLD
D1	1SS119	PROTECTOR
2	1SS119	PROTECTOR
4	1SS119	ABL
5	1SS119	ABL
6	RD12ESB1	OVER LOAD LED DRIVE
7	1SS119	ABL
8	1SS119	G2 CONTROL
101	1SS119	PROTECTOR
102	MC932	PROTECTOR
103	RD4.3ES-T1B	LIMITER
104	1SS119	LIMITER
105	1SS119	PROTECTOR
202	MC932	PROTECTOR
203	RD4.3ES-T1B	LIMITER
204	1SS119	LIMITER
301	1SS119	PROTECTOR
302	MC932	PROTECTOR
303	RD4.3ES-T1B	LIMITER
304	1SS119	LIMITER
D105	RD6.2ESB	
D205	RD6.2ESB	
D305	RD6.3ESB	

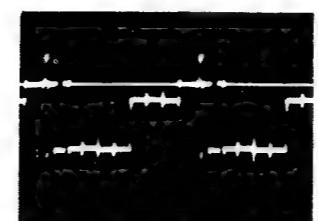
q110	2SK381	SAMPLE-HOLD
113	2SK381	SAMPLING
114	2SA1091	CLAMP BIAS CONTROL
201	2SA844	LIMITER
202	2SA844	LIMITER
203	2SA844	LIMITER
205	2SK381	GAIN CONTROL
206	2SA844	AMP
207	2SC2668	AMP
208	2SA844	AMP
209	2SK381	SAMPLE-HOLD
210	2SK381	SAMPLE-HOLD
213	2SK381	SAMPLING
214	2SA1091	CLAMP BIAS CONTROL
301	2SA844	LIMITER
302	2SA844	LIMITER
305	2SK381	GAIN CONTROL
306	2SA844	AMP
307	2SC2668	AMP
308	2SA844	AMP
309	2SK381	SAMPLE-HOLD
310	2SK381	SAMPLE-HOLD
313	2SK381	SAMPLING
314	2SA1091	CLAMP BIAS CONTROL



① 1.0Vp-p(H)



② 1.0Vp-p(H)

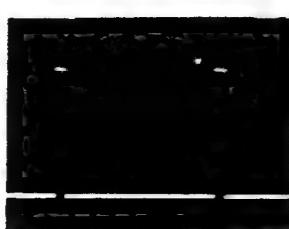


③ 1.0Vp-p(H)

B J BOARD

IC1		HD14538BP	PIC SET. PULSE GEN
2		MC14001BCP	CROSS HATCH GEN
3		TC4040BP	V SYNC & DELAY
4		TC4040BP	V COUNT
5		TC504027BP	V SYNC & DELAY
6(1/2)		TC504027BP	CHROMA CLAMP PULSE GEN
(2/2)			2FH MULTI
7		TC504027BP	V COUNT
8		TC504027BP	1H PULSE PROCESS
9(1/2)		TC4027BP	V SYNC & DELAY
(2/2)			1H PULSE PROCESS
10(1/2)		HD14538BP	B.G.P GEN 2
(2/2)			H CYCLE
11(1/2)		HD14538BP	CROSS HATCH GEN
(2/2)			SPLIT Y BLK, C BLK PULSE GEN
12		HD14538BP	Y CYCLE AGC & CLAMP PULSE GEN
13(1/4)			CHROMA CLAMP PULSE GEN
(2/4)		MC14001BCP	Y.CLP GEN
(3/4)			B.G.P GEN 2
(4/4)			RESIDUAL PULSE GEN
14(1/4)		MC14001BCP	SPLIT Y BLK: C BLK PULSE GEN
(3/4)			V CYCLE AGC & CLAMP PULSE GEN
(4/4)			V CYCLE AGC & CLAMP PULSE GEN
15		MC14071BCP	CROSS HATCH GEN
16(1/4)		MC14011BCP	Y CYCLE AGC & CLAMP PULSE GEN
(2/4)			H OR V BLK, P
(3/4)			SPLIT Y BLK, C BLK PULSE GEN
(4/4)			CROSS HATCH GEN
17		MC14011BCP	CROSS HATCH GEN
18		TC4023BP	CROSS HATCH GEN
19(1/4)		MC14081BCP	V COUNT
(2/4)			V SYNC & DELAY
(3/4)			2FH MULTI
(4/4)			1H PULSE PROCESS
20		MC14081BCP	V COUNT
21(1/4)		MC14071BCP	V CYCLE AGC & CLAMP PULSE GEN
(2/4)			V SYNC & DELAY
(3/4)			V COUNT
(4/4)			2FH MULTI
22(1/4)		MC14071BCP	V COUNT
(2/4)			V SYNC & DELAY
(3/4)			V COUNT
(4/4)			V SYNC & DELAY

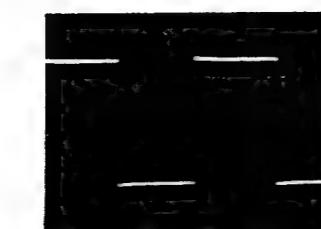
5. DIAGRAMS



12V_{p-p} (H)



12Vp-p (V)

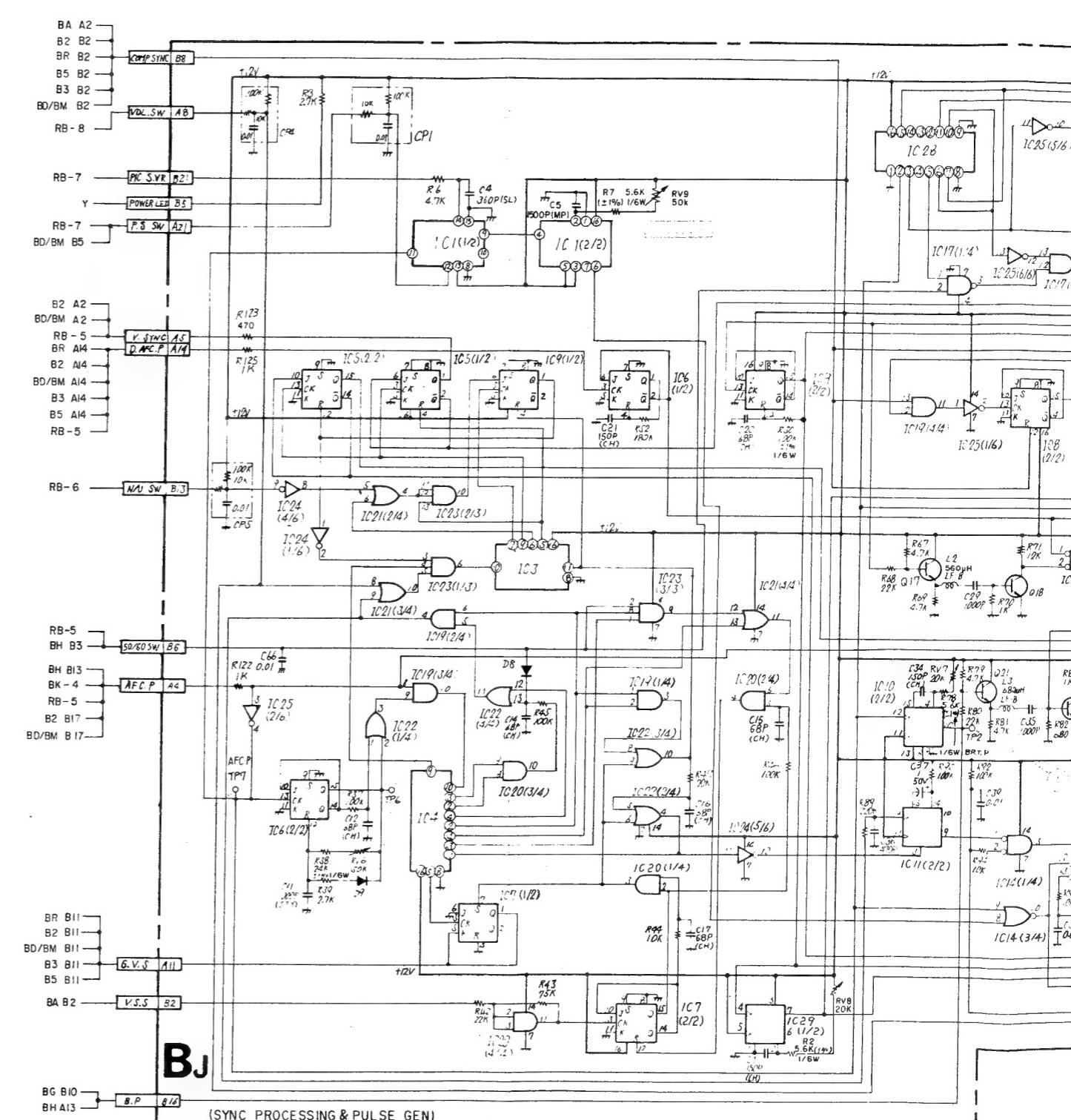


12Vp-p



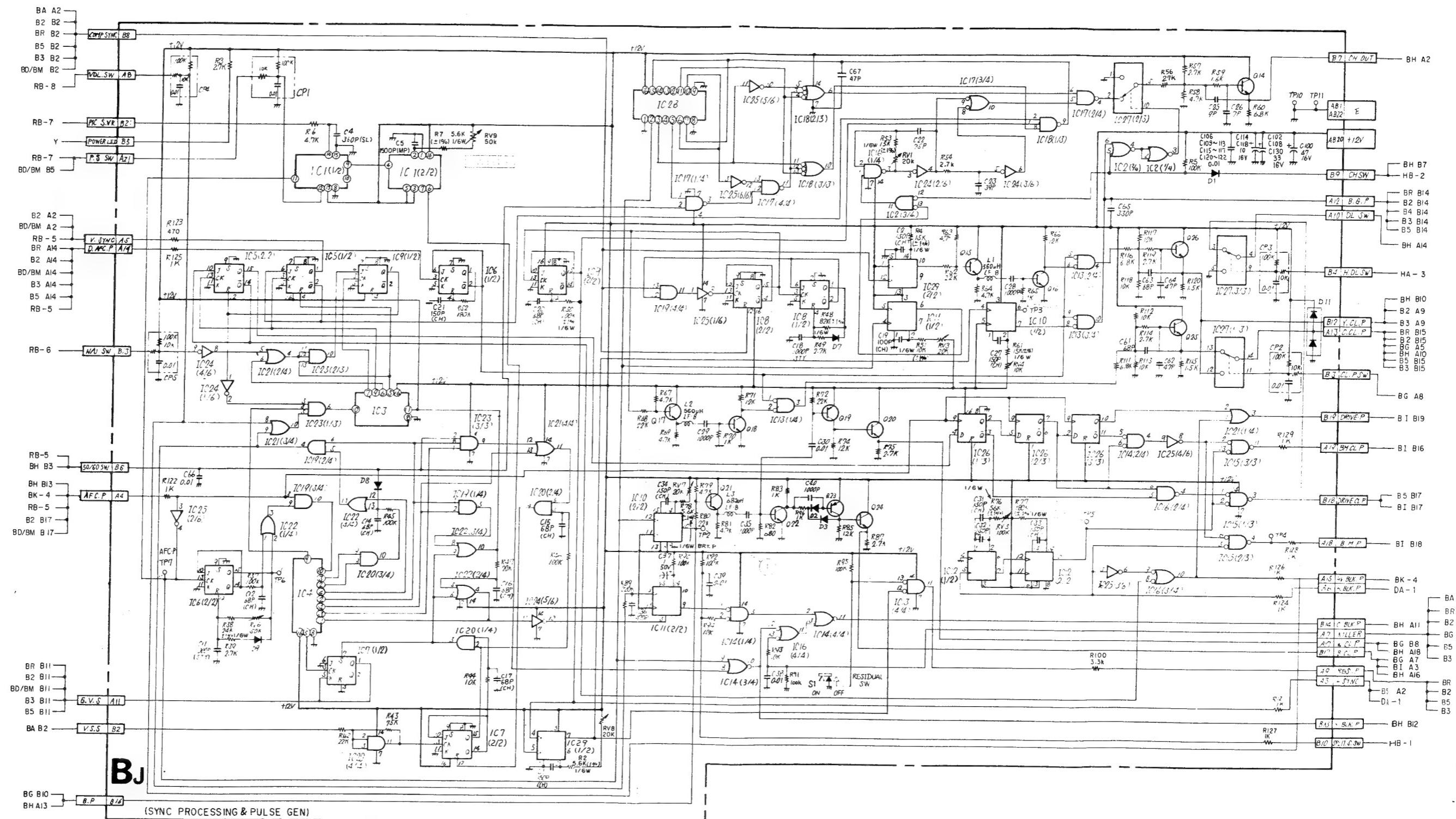
— 1 —

BJ board (SYNC PROCESSING & PULSE GEN)



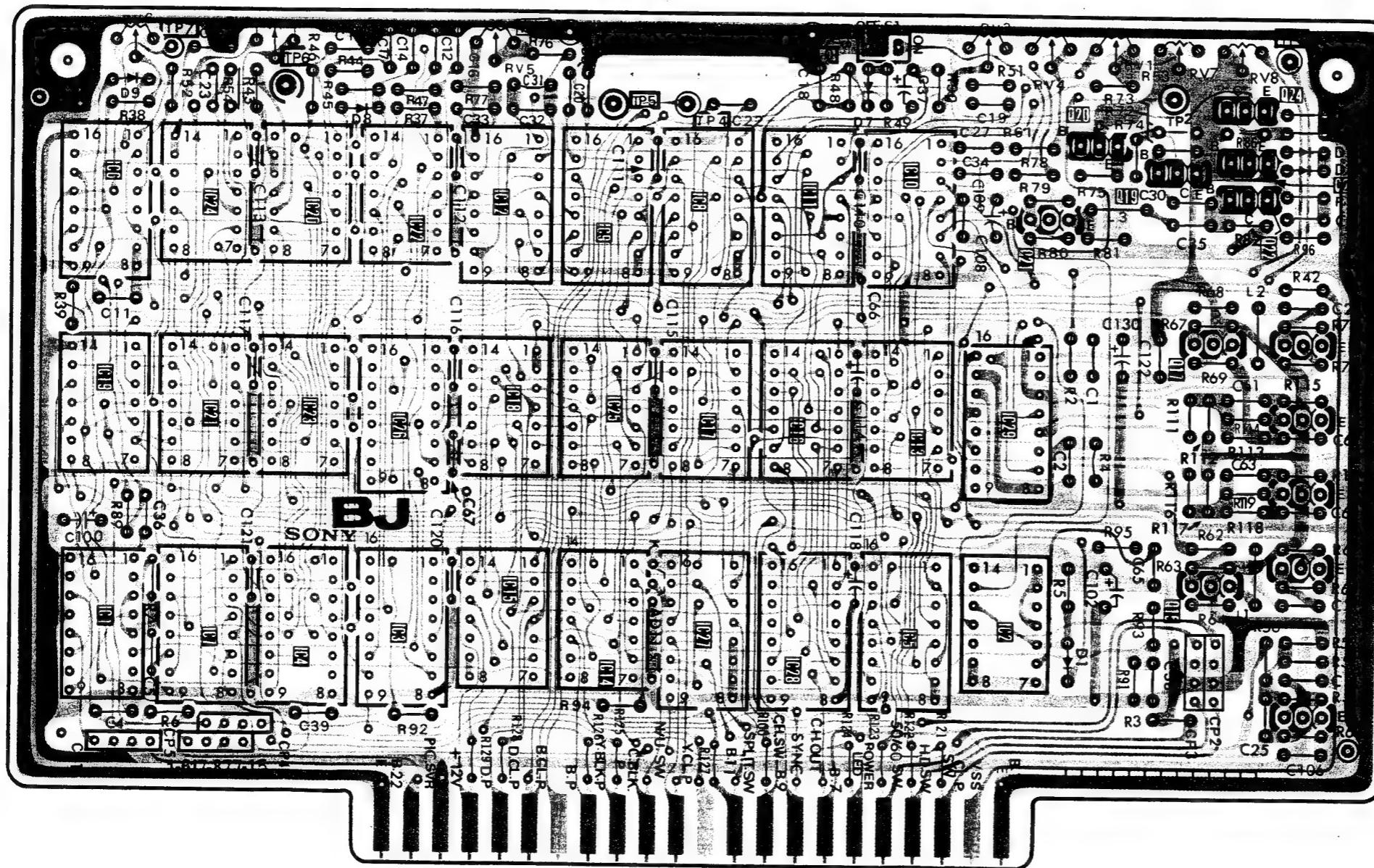
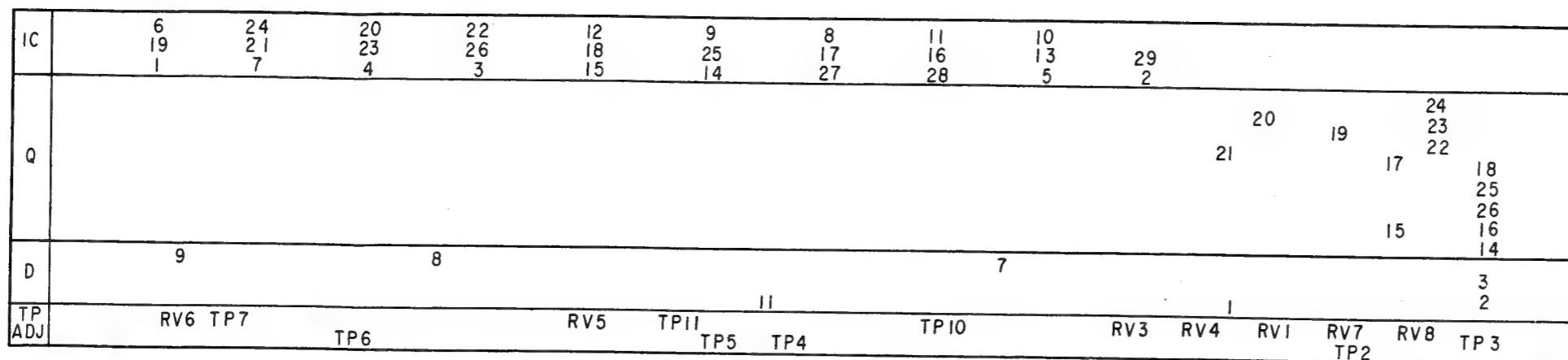
BJ board (SYNC PROCESSING & PULSE GEN)

8 DELAY
8 DELAY
ATCH GEN
E PROCESS
BLK_P AGC & CLAMP PULSE GEN
ATCH GEN
E PROCESS ULSE CHANGE SW
ATCH GEN
DL SW
ATCH GEN
EN 1 GEN
ATCH GEN
GEN
GEN
CLAMP PULSE GEN
CLAMP PULSE GEN
CLAMP PULSE GEN
GEN
ATCH GEN
E PROCESS DELAY
F1



BJ BJ

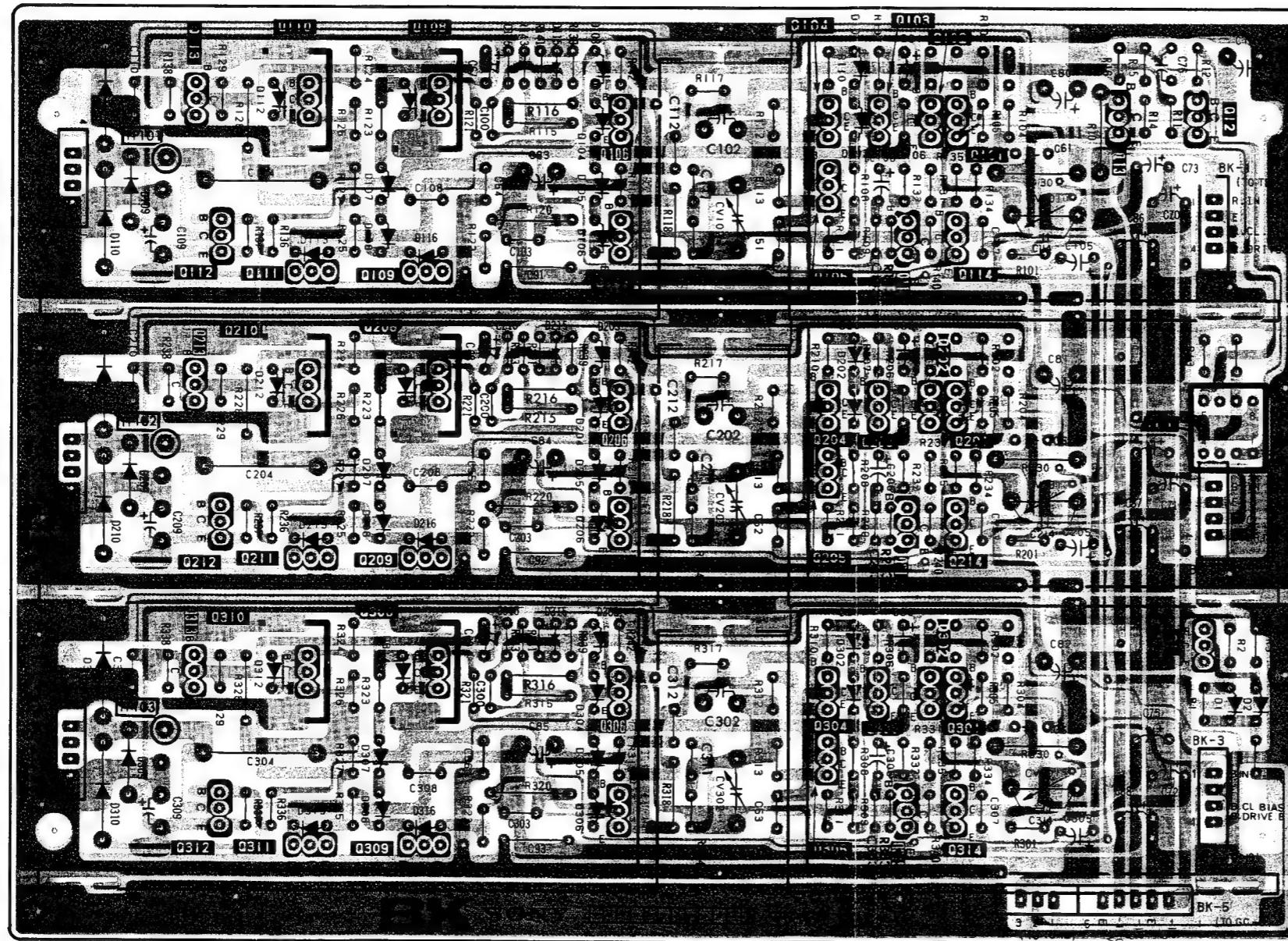
BJ board (SYNC PROCESSING & PULSE GEN)



BK BK

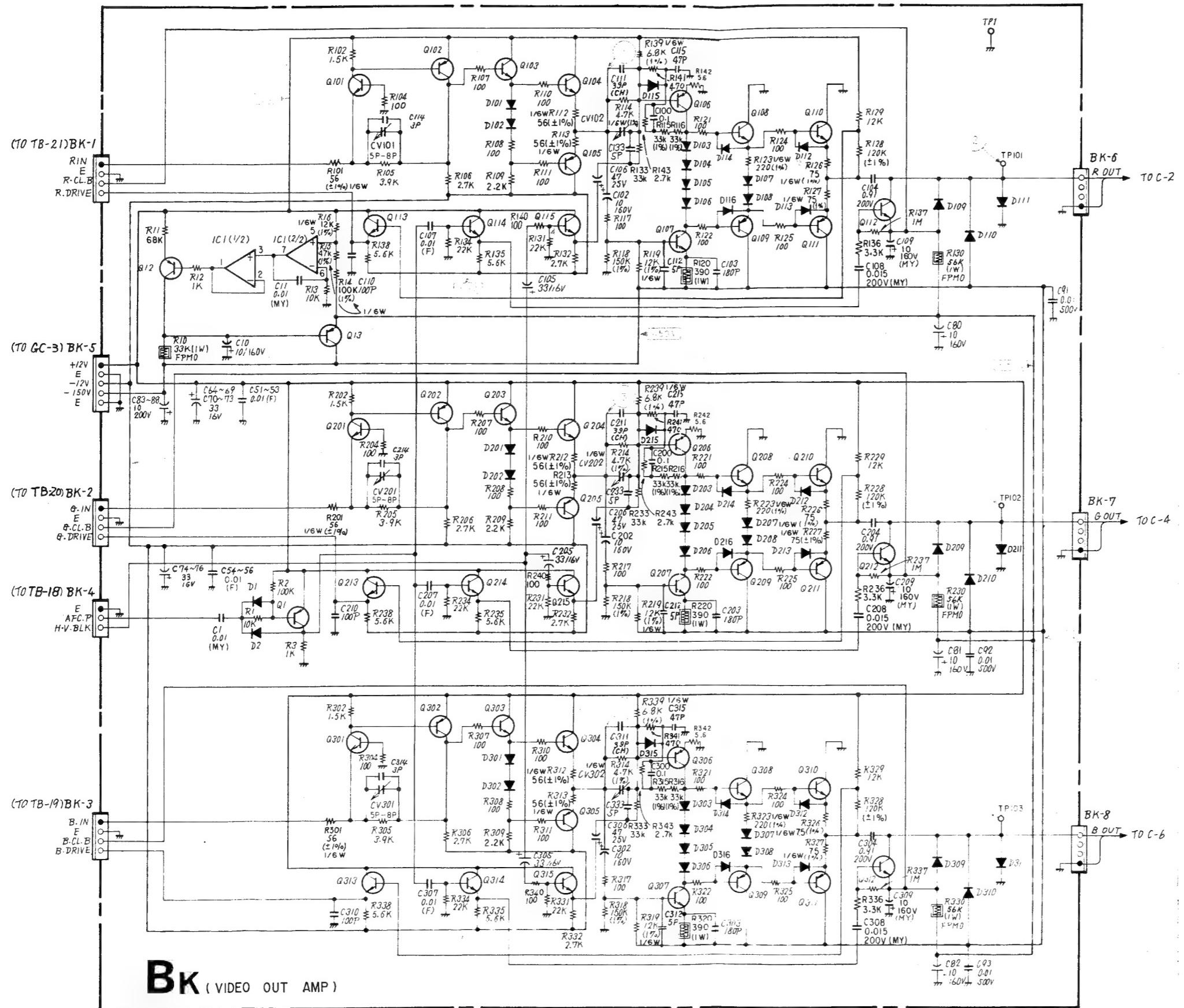
BK board (VIDEO OUT AMP)

IC													
Q	113 112 213 212 313 312	110 111 210 211 310 311	108 109 208 209 308 309	106 107 206 207 306 307	104 105 204 205 304 305	103 115 203 215 303 315	101 114 202 214 301 314	13	12				
D	111 109 110 211 209 210 311 309 310	112 113 212 213 312 313	107 114 108 116 207 214 208 216 307 314 308 316	115 104 103 106 105 215 204 203 206 205 315 304 303 306 305	101 102 201 202 301 302								
TP ADJ	TPI01 TPI02 TPI03	TPI1		CV102 CV202 CV302			CV101 CV201 CV301						



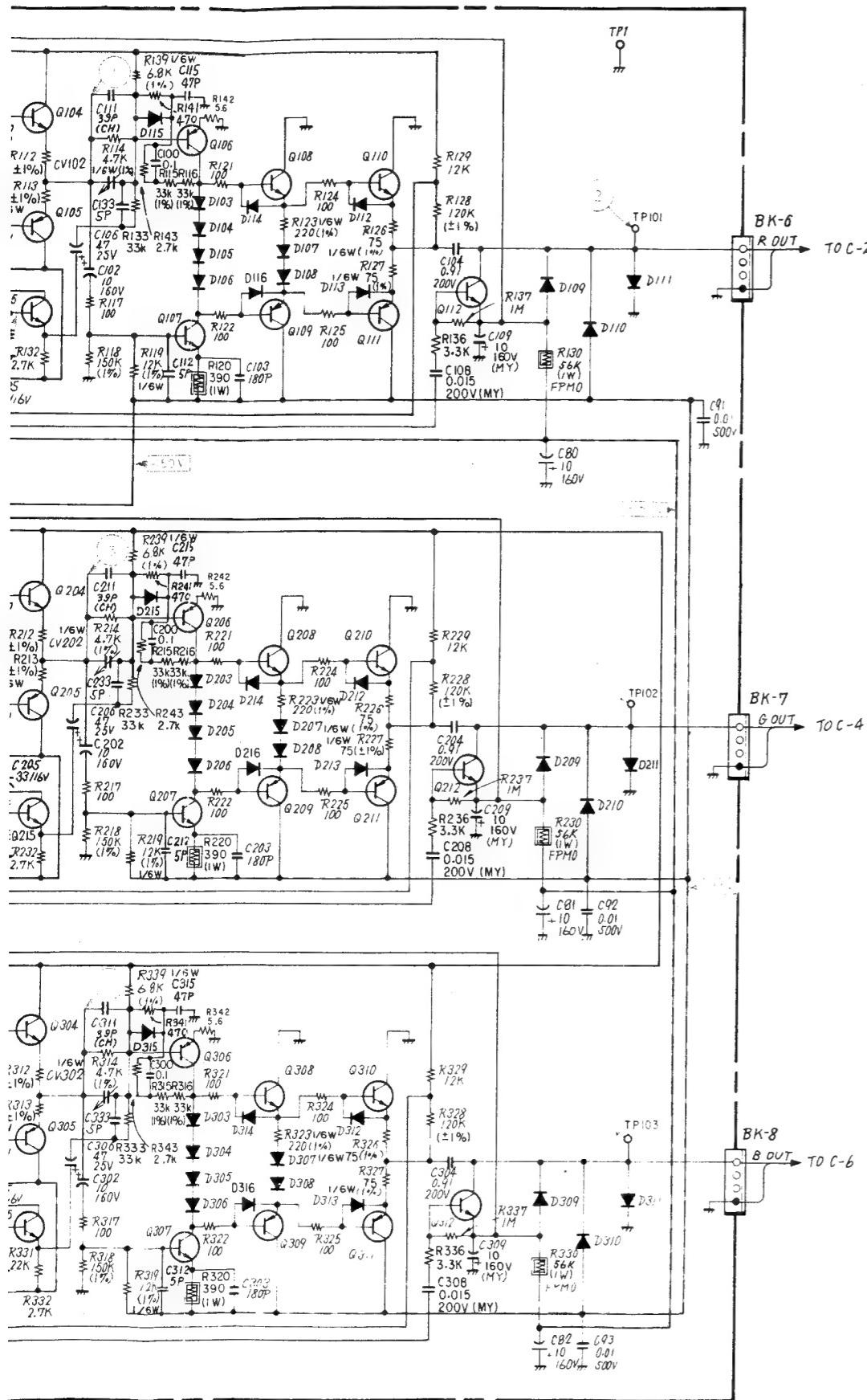
- Conductor side pattern
- Component side pattern

BK board (VIDEO OUT AMP)



IC1
Q1
12
13
101
102
103
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107
108
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111
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113
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201
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BK BOARD



IC1	RC4558DA1	LIPPLE FILTER
Q1	2SA844	INVERTER
12	2SA1091	LIPPLE FILTER
13	2SA1091	LIPPLE FILTER
101	2SC2668	R-PRE AMP.
102	2SA844	R-PRE AMP.
103	2SC403SP	BUFF.
104	2SC403SP	BUFF.
105	2SA844	BUFF.
106	2SA1406	R-VIDEO OUT
107	2SC3600	R-VIDEO OUT
108	2SC3600	BUFF.
109	2SA1406	BUFF.
110	2SC3600	BUFF.
111	2SA1406	BUFF.
112	2SC2551	R-CLAMP
113	2SC403SP	R-CLAMP
114	2SC403SP	R-CLAMP
115	2SC403SP	BLANK PULSE BUFF.
201	2SC2668	G-PRE AMP.
202	2SA844	G-PRE AMP.
203	2SC403SP	BUFF.
204	2SC403SP	BUFF.
205	2SA844	BUFF.
206	2SA1406	G-VIDEO OUT
207	2SC3600	G-VIDEO OUT
208	2SC3600	BUFF.
209	2SA1406	BUFF.
210	2SC3600	BUFF.
211	2SA1406	BUFF.
212	2SC2551	G-CLAMP
213	2SC403SP	G-CLAMP
214	2SC403SP	G-CLAMP
215	2SC403SP	BLANK PULSE BUFF.
301	2SC2668	B-PRE AMP.
302	2SA844	B-PRE AMP.
303	2SC403SP	BUFF.
304	2SC403SP	BUFF.
305	2SA844	BUFF.
306	2SA1406	B-VIDEO OUT
307	2SC3600	B-VIDEO OUT
308	2SC3600	BUFF.
309	2SA1406	BUFF.
310	2SC3600	BUFF.
311	2SA1406	BUFF.
312	2SC2551	B-CLAMP
313	2SC403SP	B-CLAMP
314	2SC403SP	B-CLAMP
315	2SC403SP	BLANK PULSE BUFF.

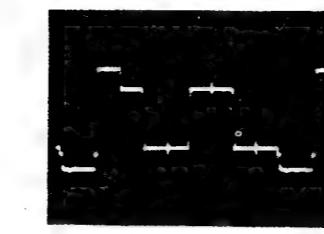
D1	1SS119	INVERTER
2	1SS119	INVERTER
101	1SS119	BIAS
102	1SS119	BIAS
103	1SS119	BIAS
104	1SS119	BIAS
105	1SS119	BIAS
106	1SS119	BIAS
107	1SS119	BIAS
108	1SS119	BIAS
109	1SS83	CLAMP
110	RU-1A	PROTECTOR
111	RU-1A	PROTECTOR
112	1SS119	PROTECTOR
113	1SS119	PROTECTOR
114	1SS119	PROTECTOR
115	1SS119	PROTECTOR
116	1SS119	PROTECTOR
201	1SS119	BIAS
202	1SS119	BIAS
203	1SS119	BIAS
204	1SS119	BIAS
205	1SS119	BIAS
206	1SS119	BIAS
207	1SS119	BIAS
208	1SS119	BIAS
209	1SS83	CLAMP
210	RU-1A	PROTECTOR
211	RU-1A	PROTECTOR
212	1SS119	PROTECTOR
213	1SS119	PROTECTOR
214	1SS119	PROTECTOR
215	1SS119	PROTECTOR
216	1SS119	PROTECTOR
301	1SS119	BIAS
302	1SS119	BIAS
303	1SS119	BIAS
304	1SS119	BIAS
305	1SS119	BIAS
306	1SS119	BIAS
307	1SS119	BIAS
308	1SS119	BIAS
309	1SS83	CLAMP
310	RU-1A	PROTECTOR
311	RU-1A	PROTECTOR
312	1SS119	PROTECTOR
313	1SS119	PROTECTOR
314	1SS119	PROTECTOR
315	1SS119	PROTECTOR
316	1SS119	PROTECTOR



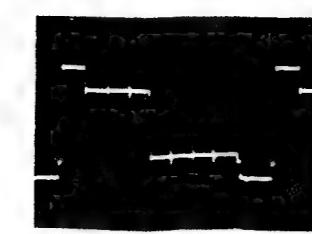
3.6Vp-p (H)



4.0Vp-p (H)



60Vp-p (H)



66Vp-p (H)



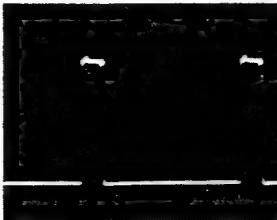
54Vp-p (H)

DA BOARD

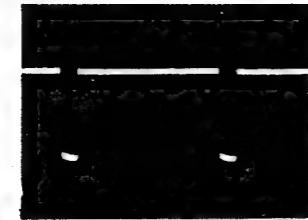
IC1	M884027B	H. BLK. WIDTH
2	H014011BP	H. DELAY. POSITION
3	TC4093BP	BUFFER
4	CX-158	H. OSC AFC
5	TL082CP	H. LIN. GEN.
6	TL082CP	H. LIN. GEN.
7	MC1496P	H. LIN. MOD.
8	LM2903DQ	1/2H, 1/2V. GEN.
9	TL082CP	H. BLK. PHASE
10	LM2903DQ	T & B. H. PHASE
11	TL082CP	T & B. PIN. GEN.
12	MC1496P	T & B. PIN. MOD.
13	uPD4066BC	50/60 SW.
14	uPD4066BC	DEF. LEVEL. SW
15	uPD4066BC	DEF. LEVEL. SW
16	uPD4066BC	DEF. LEVEL. SW
17	RC4558DQ	BUFFER
18	CX23025	50/60 SELECTOR
19	RC4558DQ	V. SAWTOOTH. GEN.
20	RC4558DQ	SIDE. PIN. GEN.
21	RC4558DQ	SIDE. PIN. GEN.
22	RC4558DQ	V. SAWTOOTH GEN.
23	RC4558DQ	BUFFER
24	uPC78M12H	+12V REG.
25	uPC79M12H	-15V REG.
	TL082CP	BUFFER
Q1	DTC144ES	H. OSC. SW
2	2SC2785	H. LIN. GEN
3	2SC2785	H. LIN. GEN
4	2SC2785	1/2H. P. GEN.
5	2SC2785	H. BLK. GEN.
6	2SC2785	H. BLK. GEN.
7	2SC2785	T & B PIN. PHASE

8	ZSC2785	T & B PIN. GEN.
9	ZSC2785	T & B PIN. GEN.
10	ZSC3068	T & B PIN. MOD.
12	DTC144ES	50/60 SW
13	DTC144ES	SCAN. SW
14	DTC144ES	SCAN. SW
15	DTC144ES	SCAN. SW
16	DTC144ES	SCAN. SW
17	DTC144ES	50/60 SW
18	ZSC2785	BUFFER
19	ZSC2785	V. SAW. GEN
20	ZSC2785	V. SAW. CLIP
21	ZSC2785	SIDE PIN GEN
22	ZSC2785	SIDE PIN GEN
23	ZSC2785	V. SAW GEN.
D1	ISS148	H. DELAY SW
2	ISS148	H. DELAY SW
3	RD6.8EB	CLIPPER
4	RD6.8EB	CLIPPER
5	RD12E-B	50/60 SW
6	RD12E-B	SCAN SW
7	ISS148	SCAN SW
8	ISS148	SCAN SW
9	RD7.5E-B	+7.5V REG.
10	RD7.5E-B	-7.5V REG.
11	RD15E-B	50/60 SW.
12	RD5.6E-B	V. SAW. CLIP
13	ISS148	V. SAW. CLIP
14	ISS148	V. SAW. CLIP
15	ISS148	AFC.CLIP
18	ISS148	PROT
19	ISS148	

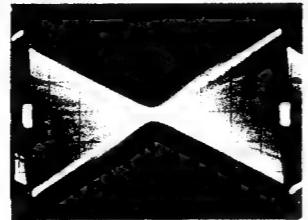
5. DIAGRAMS



14Vp-p (H)



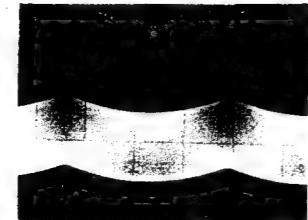
10Vp-p (H)



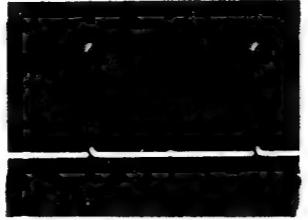
2.5Vp-p (V)



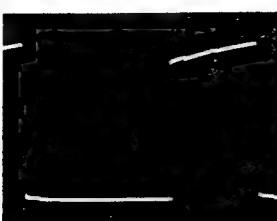
14Vp-p (H)



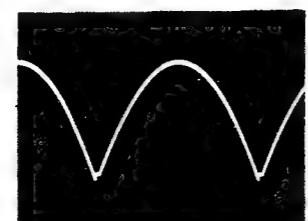
4.5Vp-p (H)



12Vp-p (V)



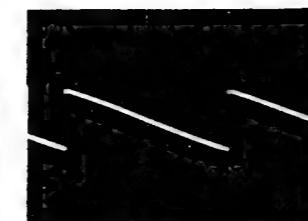
9Vp-p (H)



1.8Vp-p (V)

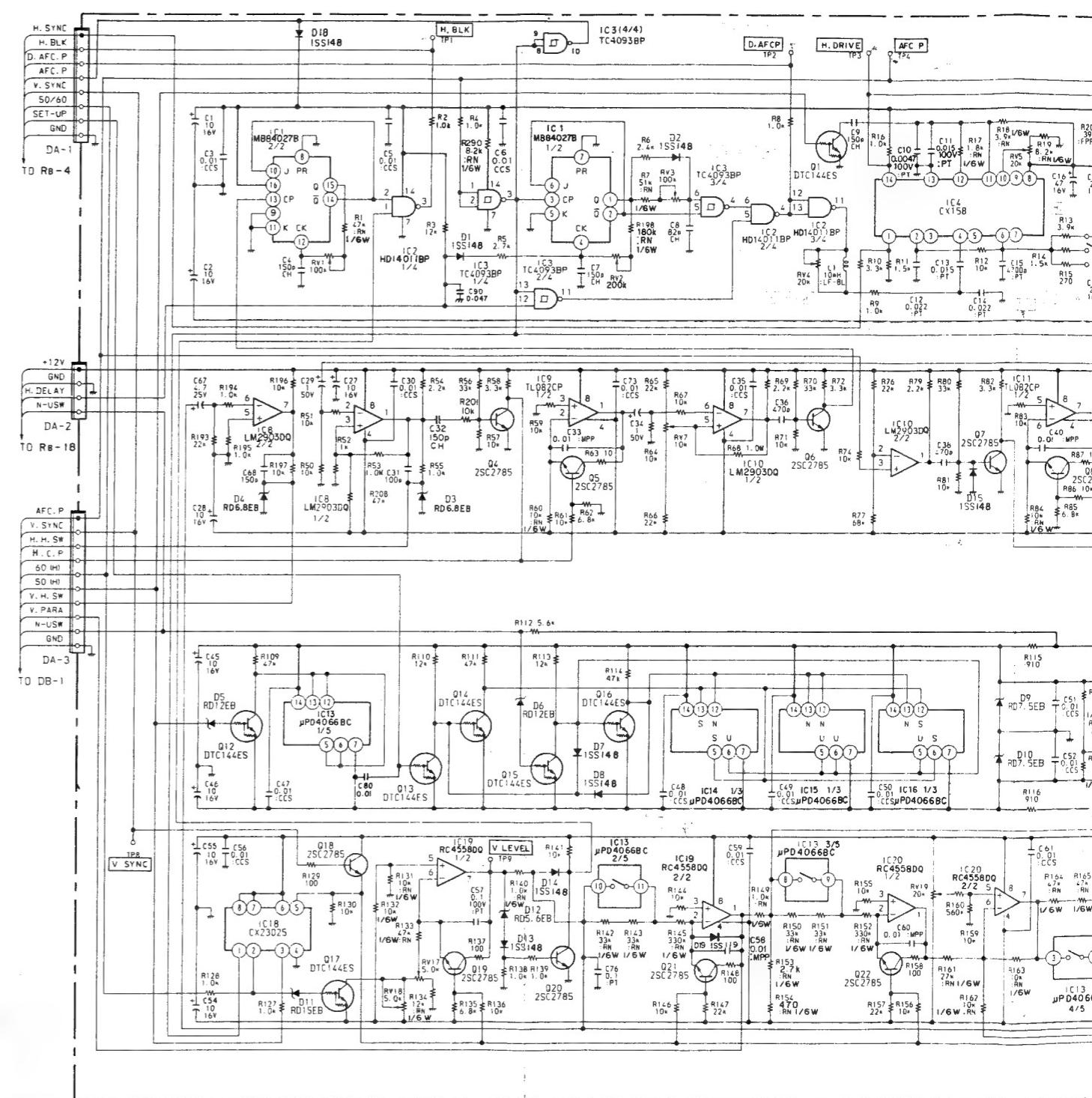


12Vp-p (V)



8Vp-p (V)

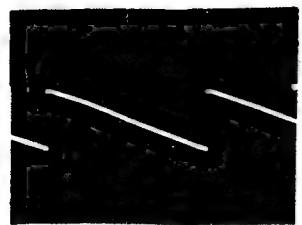
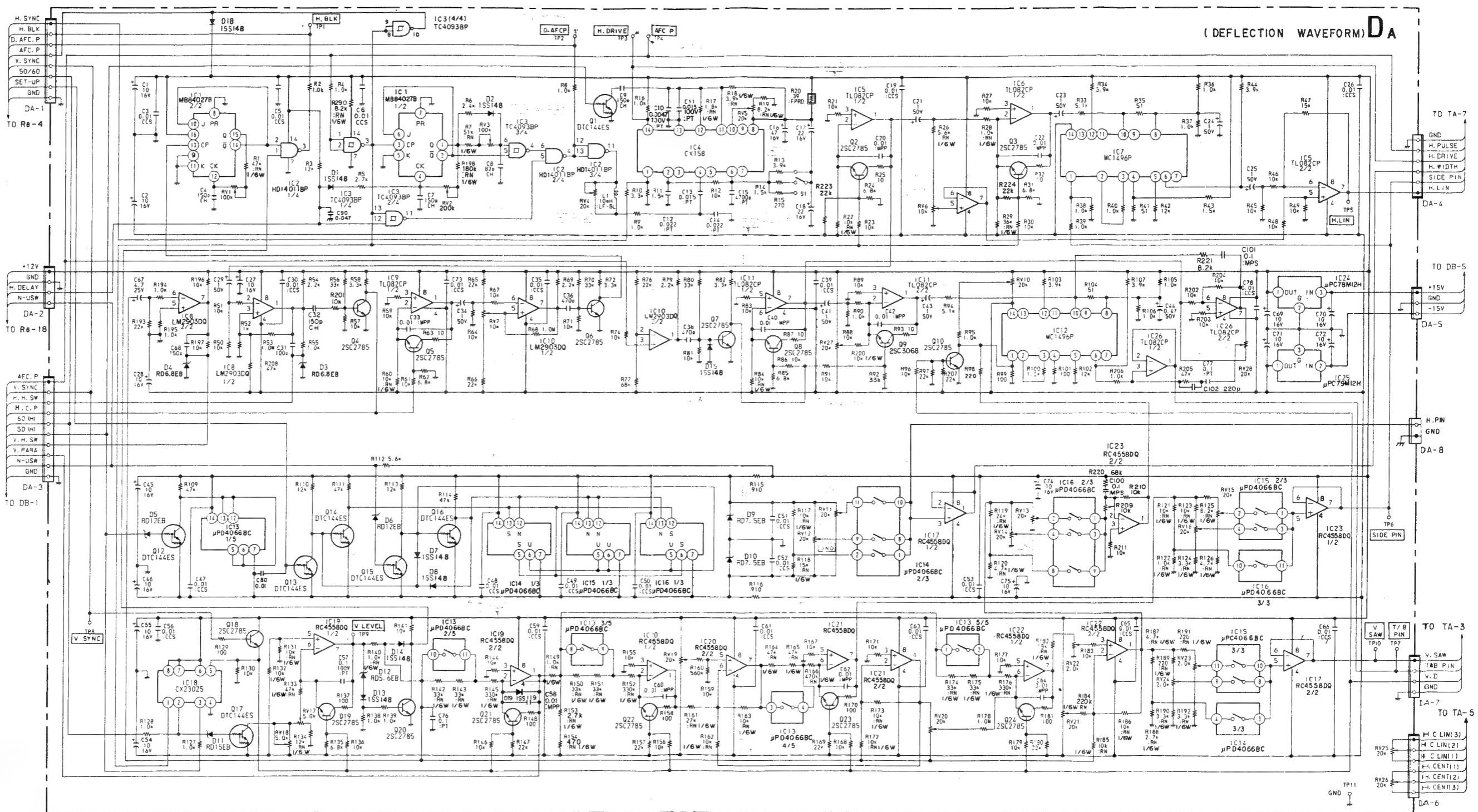
DA board (DEFLECTION WAVEFORM)



DA DA

DA board (DEFLECTION WAVEFORM)

& B PIN. GEN.
& B PIN. GEN.
& B PIN. MOD.
/60 SW
AN. SW
AN. SW
AN. SW
AN. SW
/60 SW
FFER
SAW. GEN
SAW. CLIP
DE PIN GEN
DE PIN GEN
DE PIN GEN
SAW GEN.
DELAY SW
DELAY SW
IPPER
IPPER
/60 SW
AN SW
AN SW
AN SW
.5V REG.
.5V REG.
/60 SW.
SAW. CLIP
SAW. CLIP
SAW. CLIP
CLIP
IT

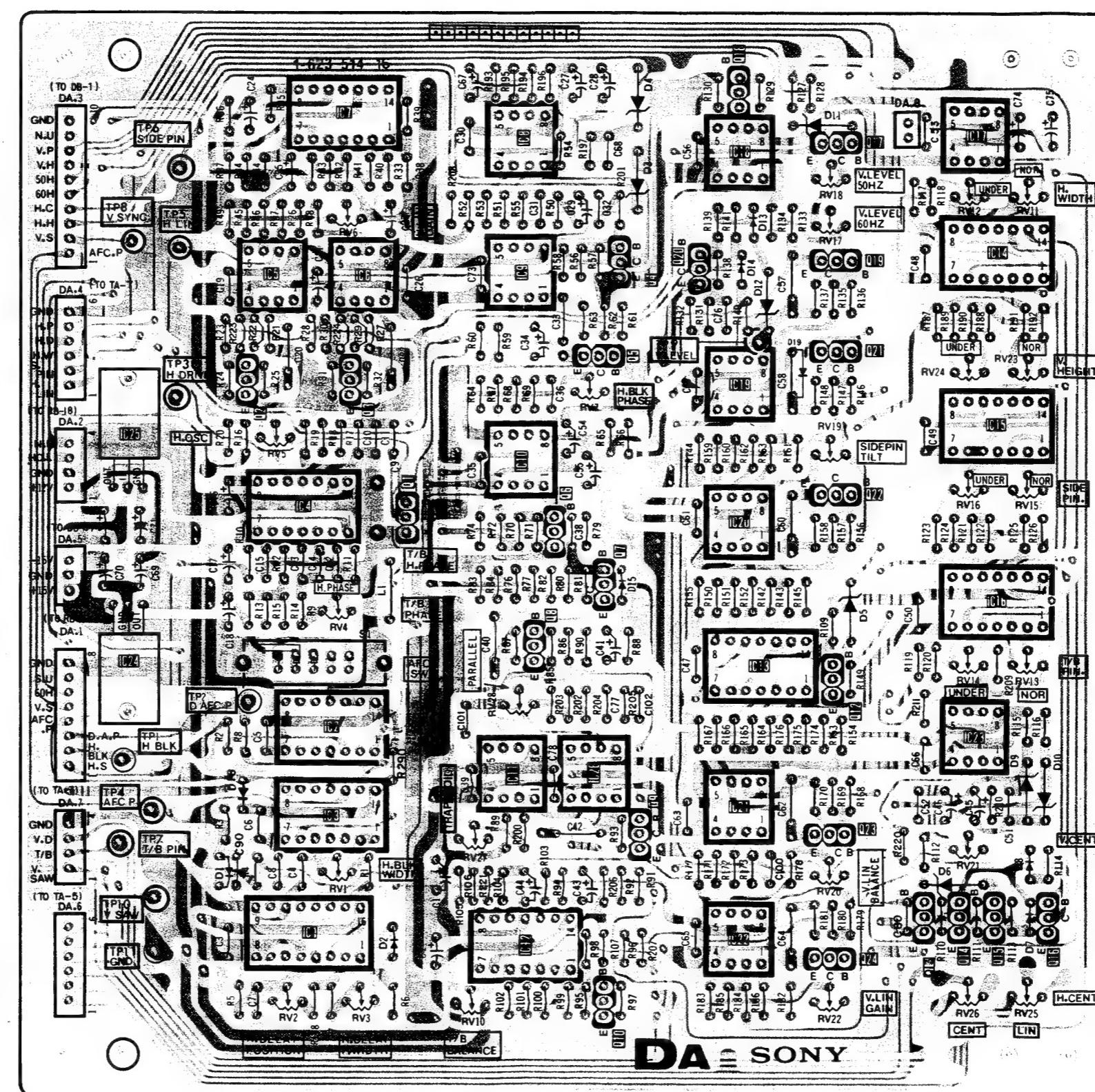


8Vp-p (V)

DA DA

DA board (DEFLECTION WAVEFORM)

IC	Q	D	TP	ADJ
7	18	4		
6 18 17	17	11		
		3	TP6	RV18
		13	TP8	RV12 RV11
		14	TP5	RV6 RV17
5, 6, 9	4, 20	19		
		12		
		19	TP9	
	21	5		RV24 RV23
19	2	3	TP3	RV7
25	15			RV5
				RV19
10				RV16 RV15
4	20	1		
		22		
		6		
16	7	15		RV4
		5		
				RV14 RV13
24	12		TP2	RV28
2	23			
11, 26	9	10	TP1	
3	21			
		18	TP4	
		1	TP7	RV27, RV21
	23	8		RV1, RV20
		6		
		7	TP10	
1	12	22	2	TP11
		10		RV2 RV10 RV26
				RV3 RV22 RV25

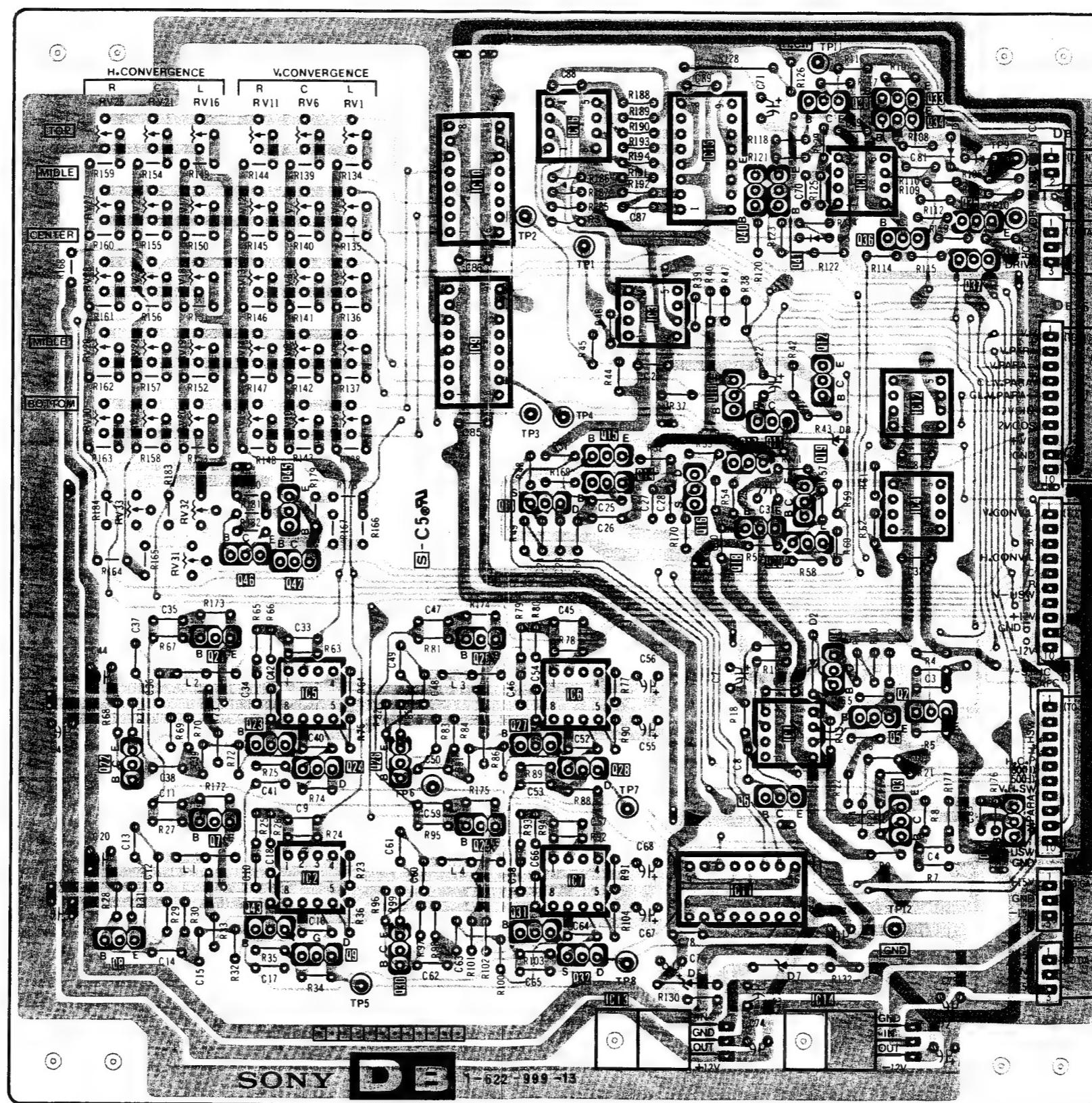


- Conductor side pattern
- Component side pattern

DB DE

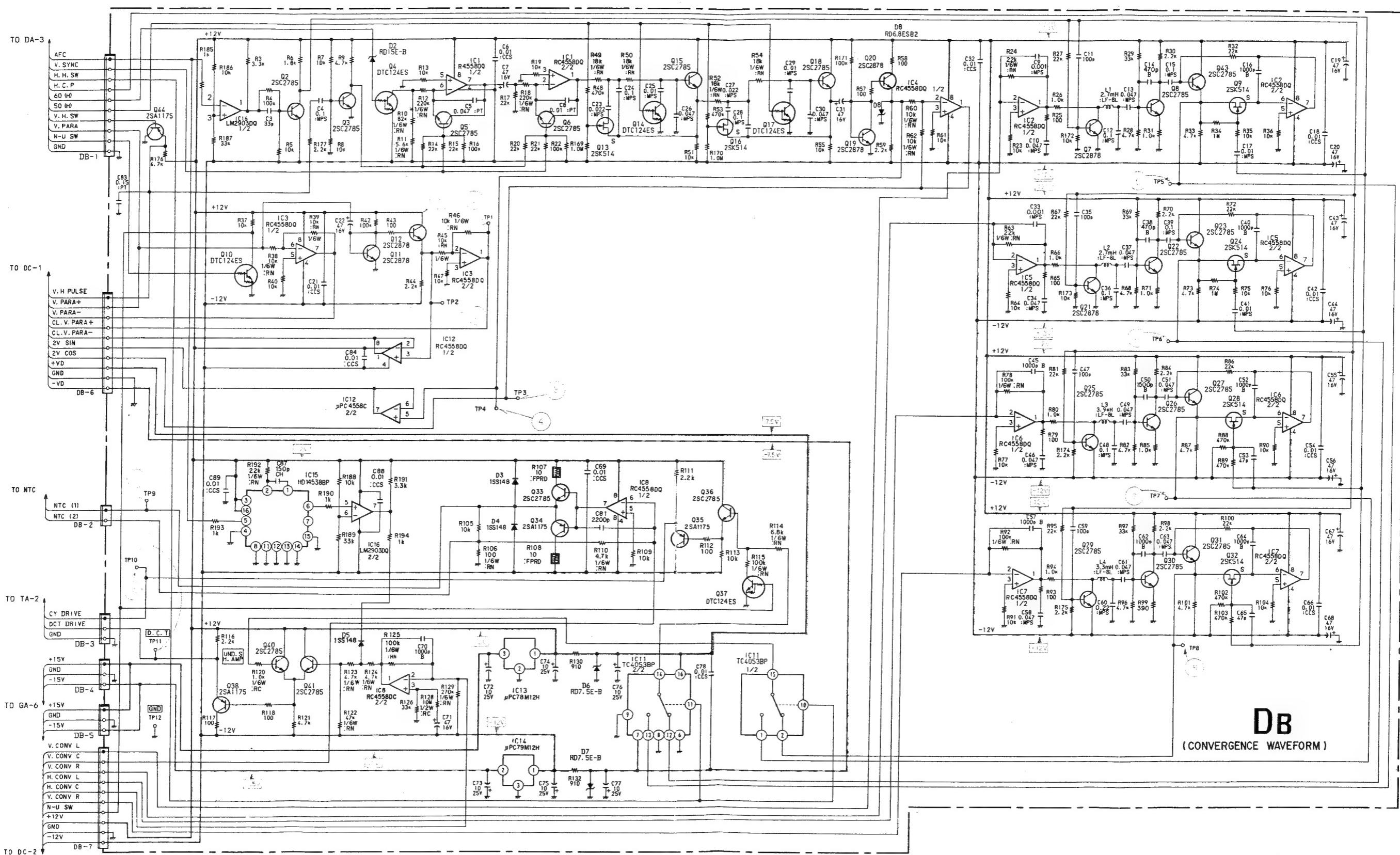
DB board (CONVERGENCE WAVEFORM)

I C	Q	D	T P
	38 33 34		11
16			
15	40 41	4 3	
8	36 35 37	5	1 2
3			
12	10,12		
	11		
	15 17	8	
4	14,16 13 19		3 4
	18		
	20		
	21 25		
5 6	4	2	
	5 2		
1	23 27		
	22 24,26 28		
	7 29	6	6 7
		3,44	
2 7 11			
8	43 31 9,30,32	7 6	12 8 5
	13,14		



- Conductor side pattern
- Component side pattern

DB board (CONVERGENCE WAVEFORM)



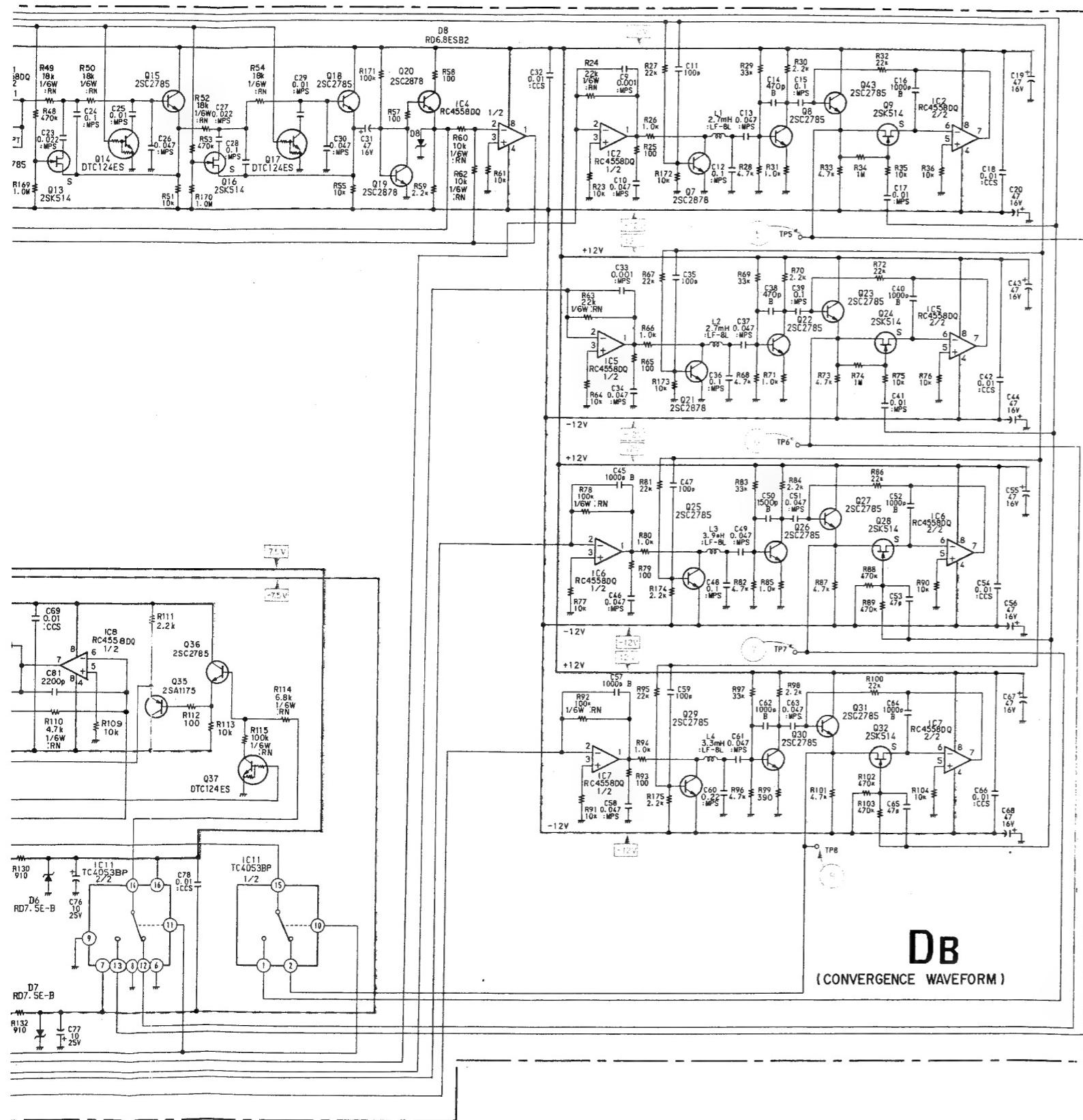
IC	1
	2
	3
	4
	5
	6
	7
	8
	11
	12
	13
	14
	15
	16
Q	2
	3
	4
	5
	6
	7
	8
	9
	10
	11
	12
	13
	14
	15
	16
	17
	18
	19



① 5.8Vf



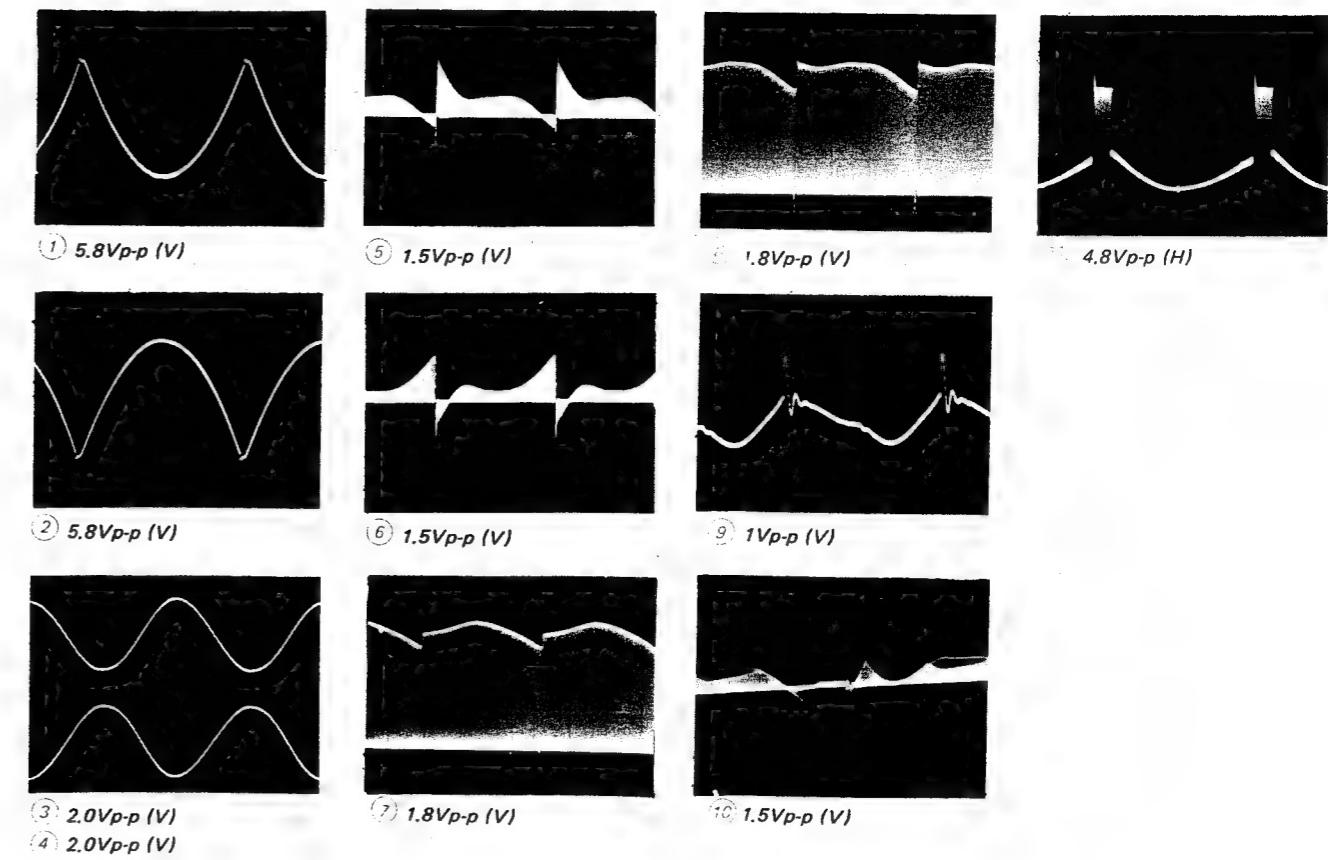
③ 2.0Vp
④ 2.0Vp



DB BOARD

IC	1	RC4558DQ	2XV GEN
	2	RC4558DQ	AMP & CLAMP
	3	RC4558DQ	INVERTER
	4	RC4558DQ	INVERTER
	5	RC4558DQ	AMP & CLAMP
	6	RC4558DQ	AMP & CLAMP
	7	RC4558DQ	AMP & CLAMP
	8	RC4558DQ	AMP
11		TC4053BPHB	1/2HV. SW
12		RC4558DQ	BUFFER
13		uPC78M12H	+12V REG.
14		uPC79M12H	-12V REG.
15		HD14538BP	H.CONV CLAMP
16		LM2903DQ	INVERTER
Q	2	2SC2785	H. SW
3		2SC2785	2XV. PULSE GEN
4		DTC124ES	50/60 SW
5		2SC2785	2XV SW
6		2SC2785	2XV SW
7		2SC2878	H. SW
8		2SC2785	AMP
9		ZSK514	H. CLAMP
10		DTC124ES	N/U SW
11		2SC2878	CLAMP
12		2SC2878	BUFFER
13		ZSK514	50/60 SW
14		DTC124ES	50/60 SW
15		2SC2785	50/60 SW
16		ZSK514	50/60 SW
17		DTC124ES	50/60 SW
18		2SC2785	BUFFER
19		2SC2878	CLAMP

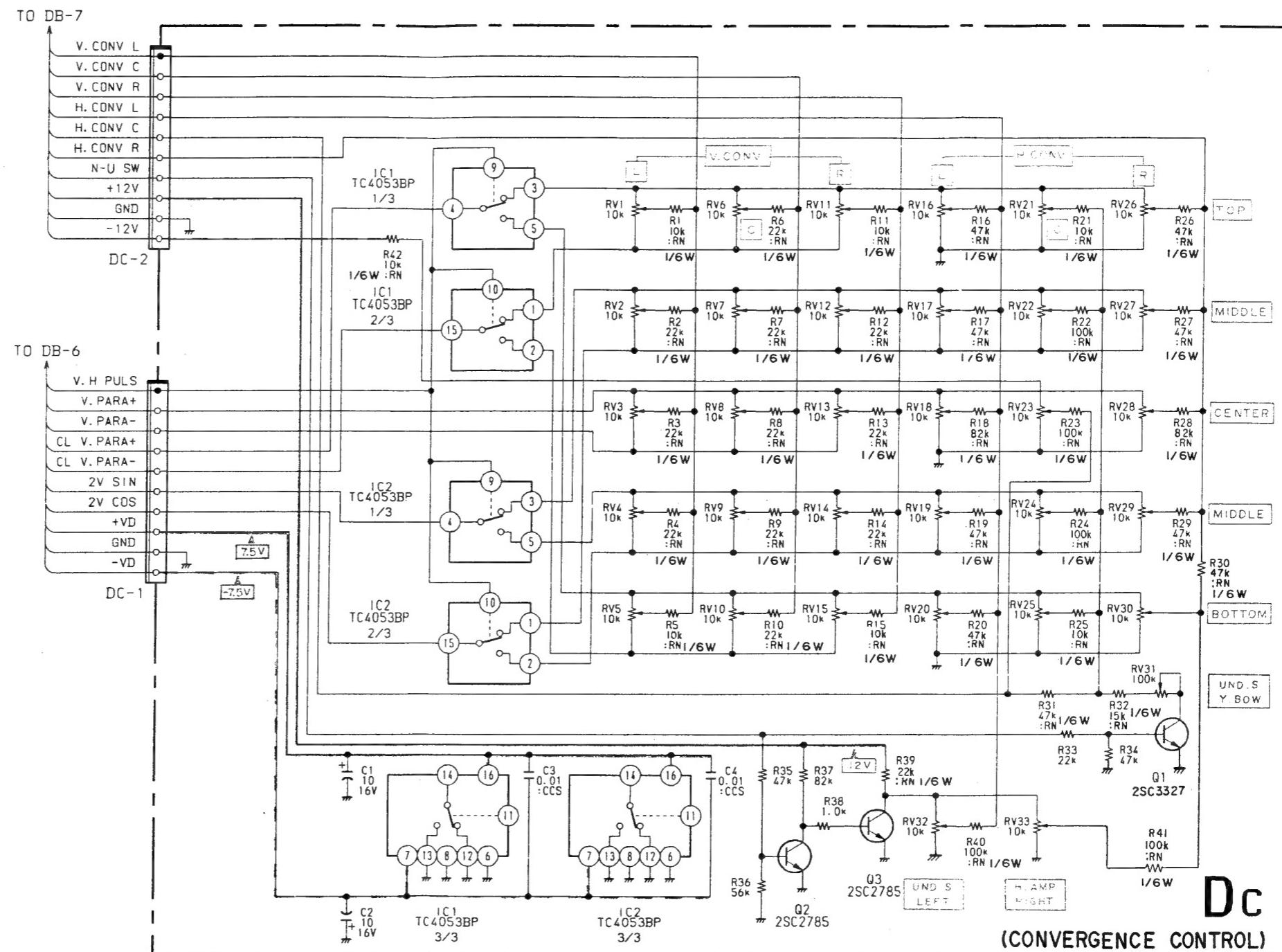
Q	20	2SC2878	BUFFER
	21	2SC2878	H. SW
	22	2SC2785	AMP
	23	2SC2785	H. CLAMP
	24	2SK514	H. CLAMP
	25	2SC2785	H. SW
	26	2SC2785	AMP
	27	2SC2785	H. CLAMP
	28	2SK514	H. CLAMP
	29	2SC2785	H. SW
	30	2SC2785	AMP
	31	2SC2785	H. CLAMP
	32	2SK514	H. CLAMP
	33	2SC2785	N.T.C AMP
	34	2SA1175	N.T.C AMP
	35	2SA1175	BUFFER
	36	2SC2785	BUFFER
	37	DTC124ES	N/U SW
	38	2SA1175	BUFFER
	40	2SC2785	ADDER
	41	2SC2785	ADDER
	43	2SC2785	H. CLAMP
	44	2SA1175	BUFFER
D	2	RD15E-B3TN	LEVEL SHIFT
	3	1SS148	PROTECTER
	4	1SS148	PROTECTER
	5	1SS148	DC STOPPER
	6	RD7.5E-B3TN	+7.5V REG.
	7	RD7.5E-B3TN	-7.5V REG.
	8	RD6.8ESB2	LIMITTER

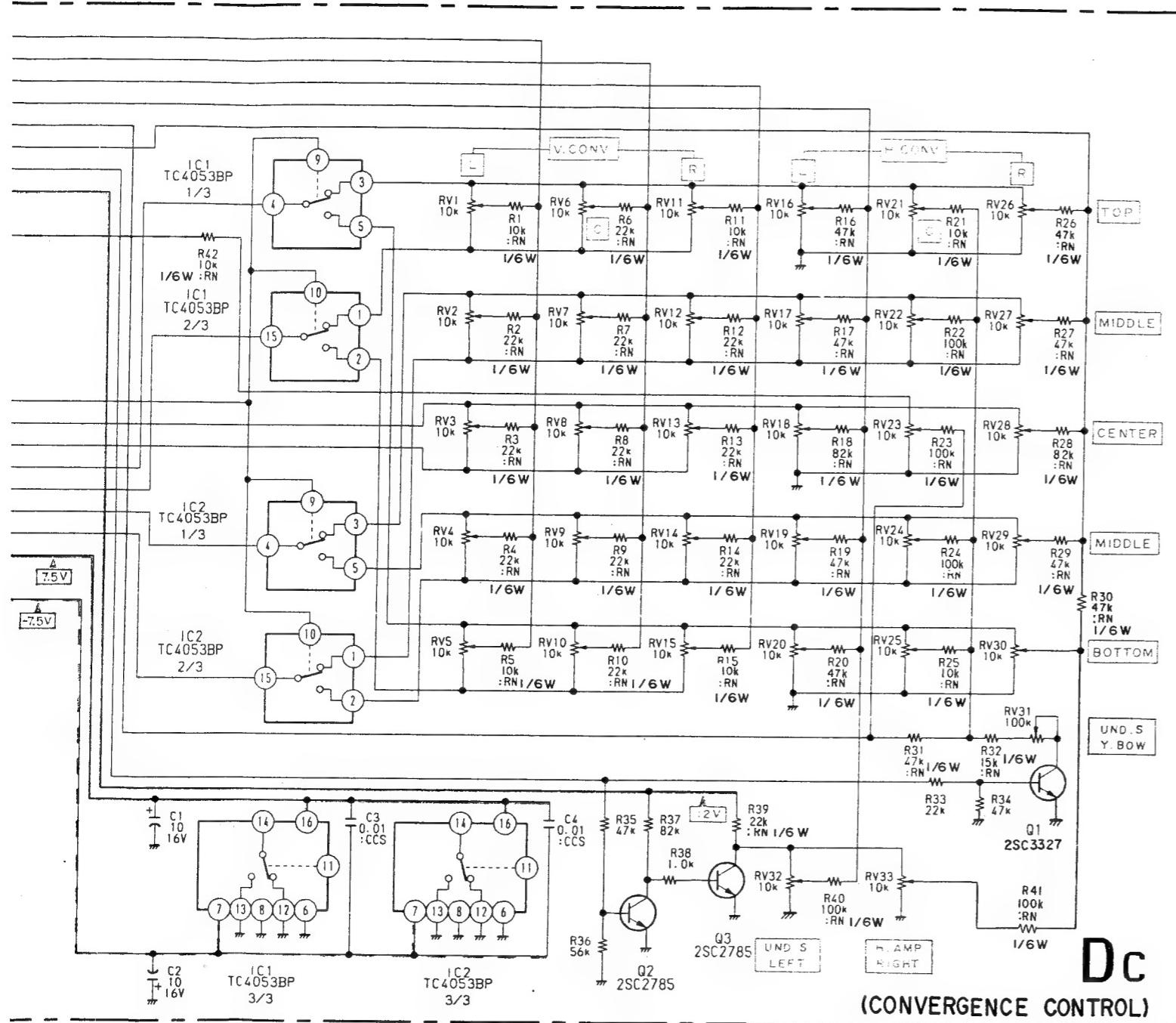


DC board (CONVERGENCE CONTROL)

IC 1	TC4053BP	1/2 HV.SW
2	TC4053BP	1/2 HV.SW
Q 1	2SC3327	UND.Y BOW
2	2SC2785	UND.H.AMP
3	2SC2785	UND.H.AMP

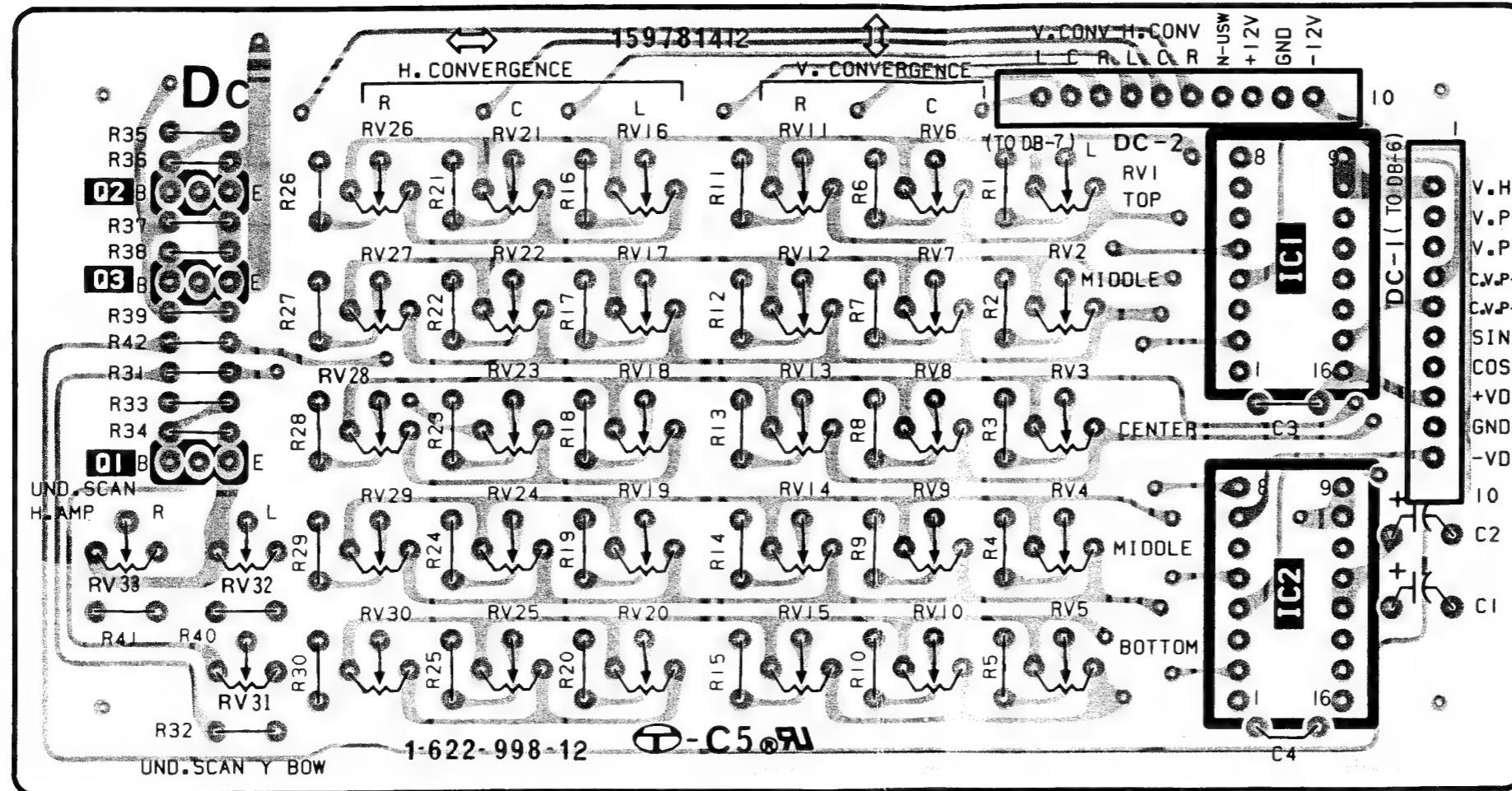
DIAGRAMS 5



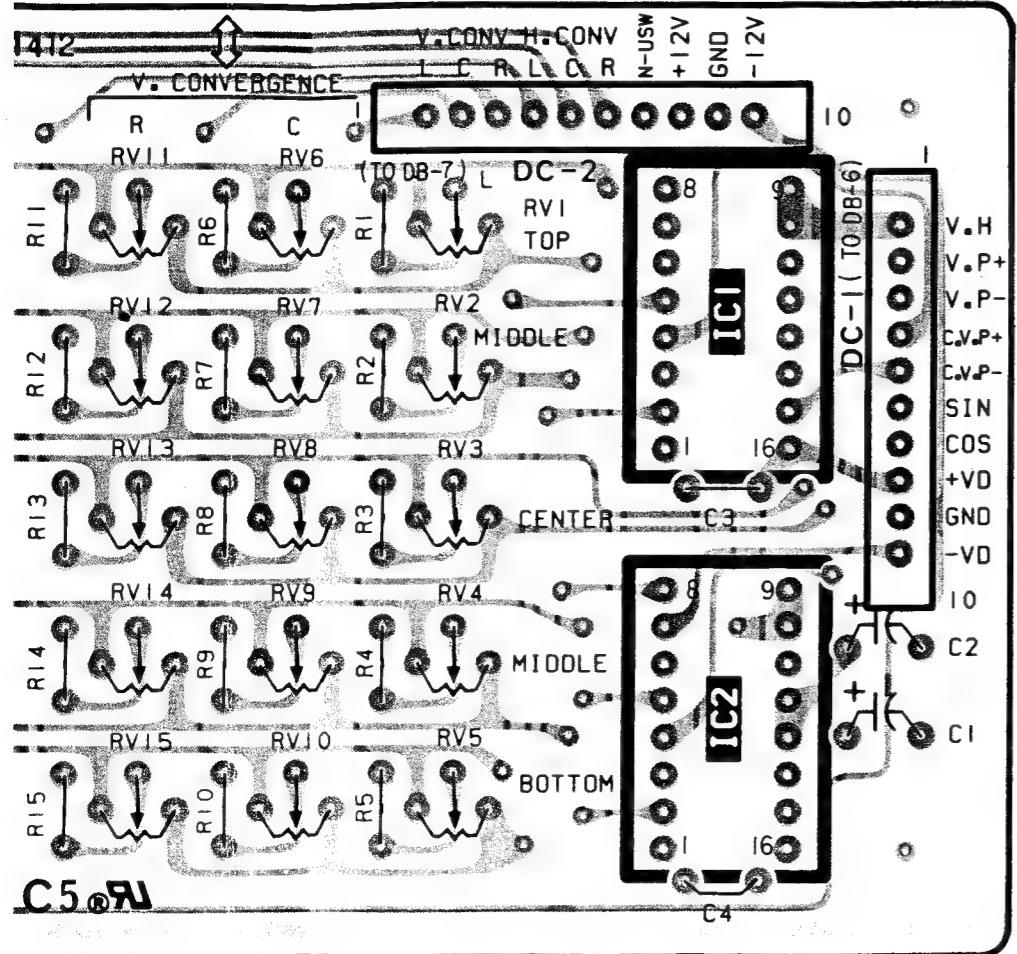


DC DC

DC board (CONVERGENCE CONTROL)



- : Conductor side pattern
- : Component side pattern



- : Conductor side pattern
- : Component side pattern

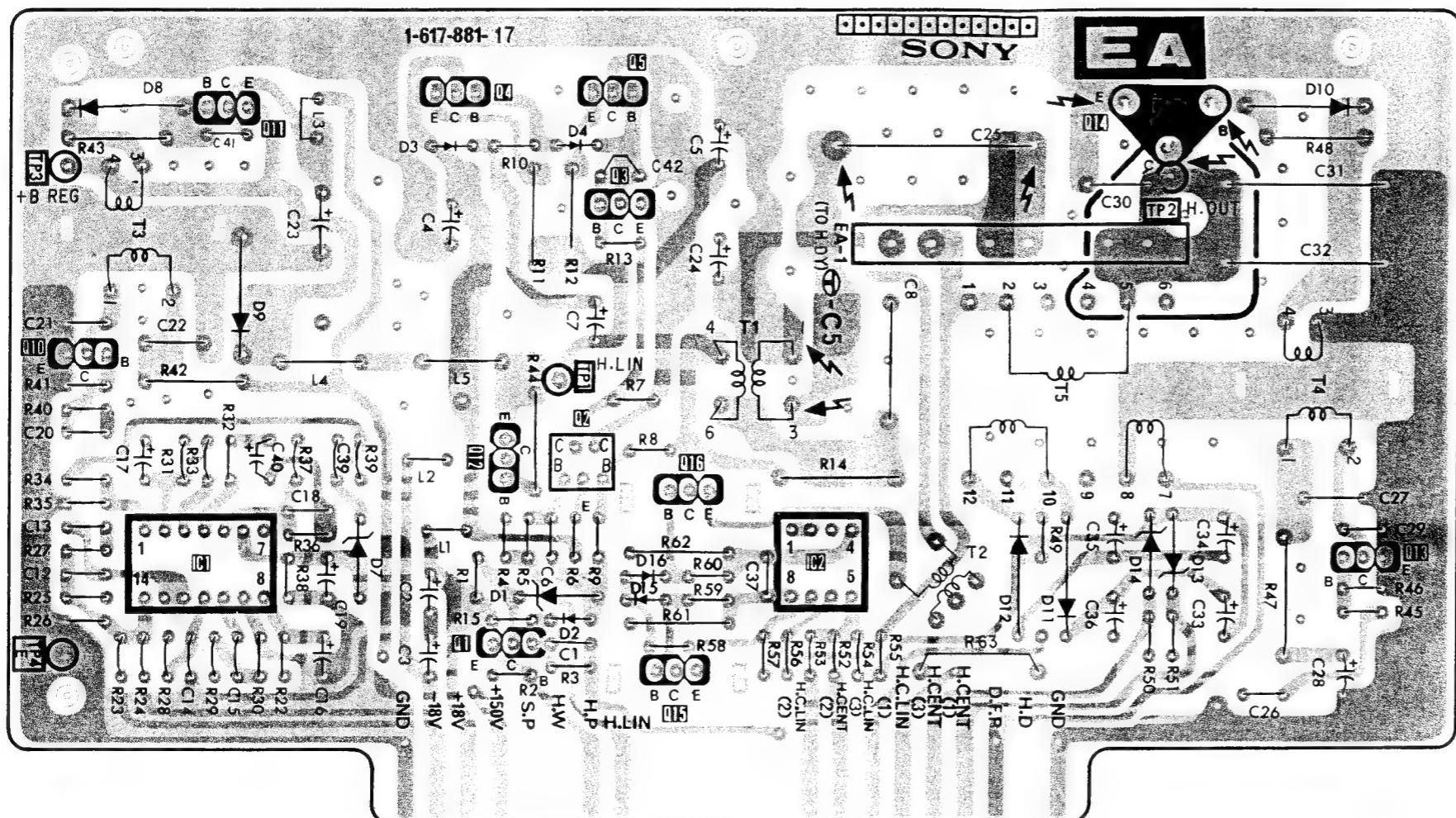
EA, EB

EA, EB EA, E

EA board (H OUT)

EB board (V OUT)

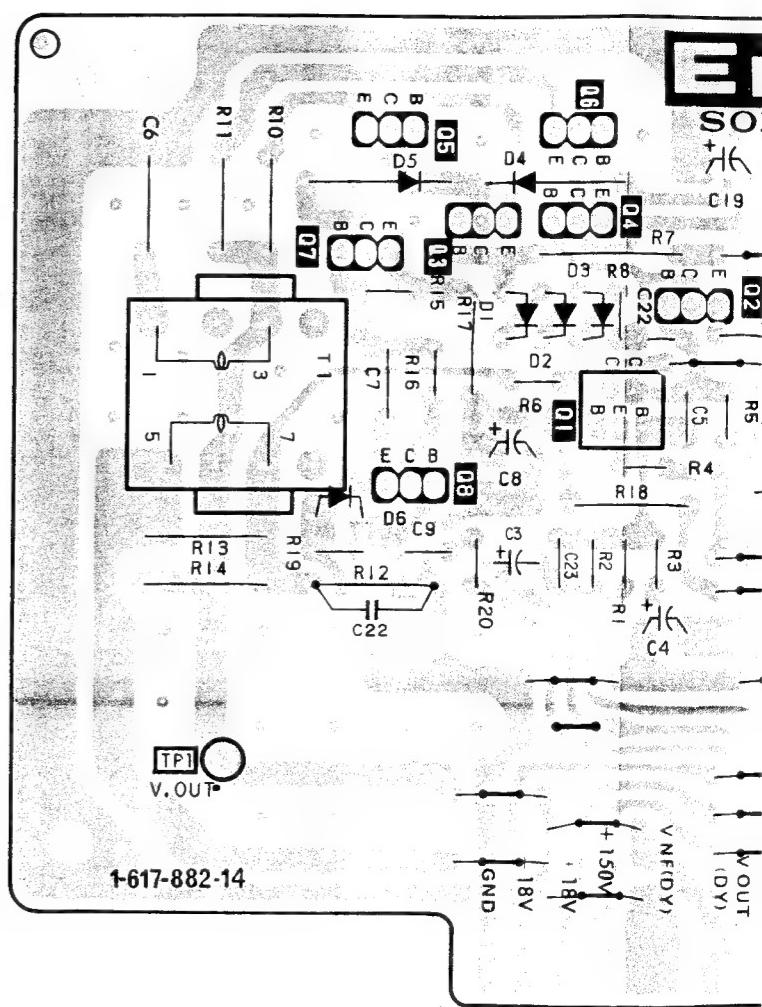
IC		1			2			
Q		11	4	5	3		14	
	10		12	2	16			13
				15				
D	8	3	4				10	
	9							
	7		12	16				
			2	15				
TP	TP 3						TP 2	
	TP 4							
		TP 1						



5. DIAGRAMS

5-66

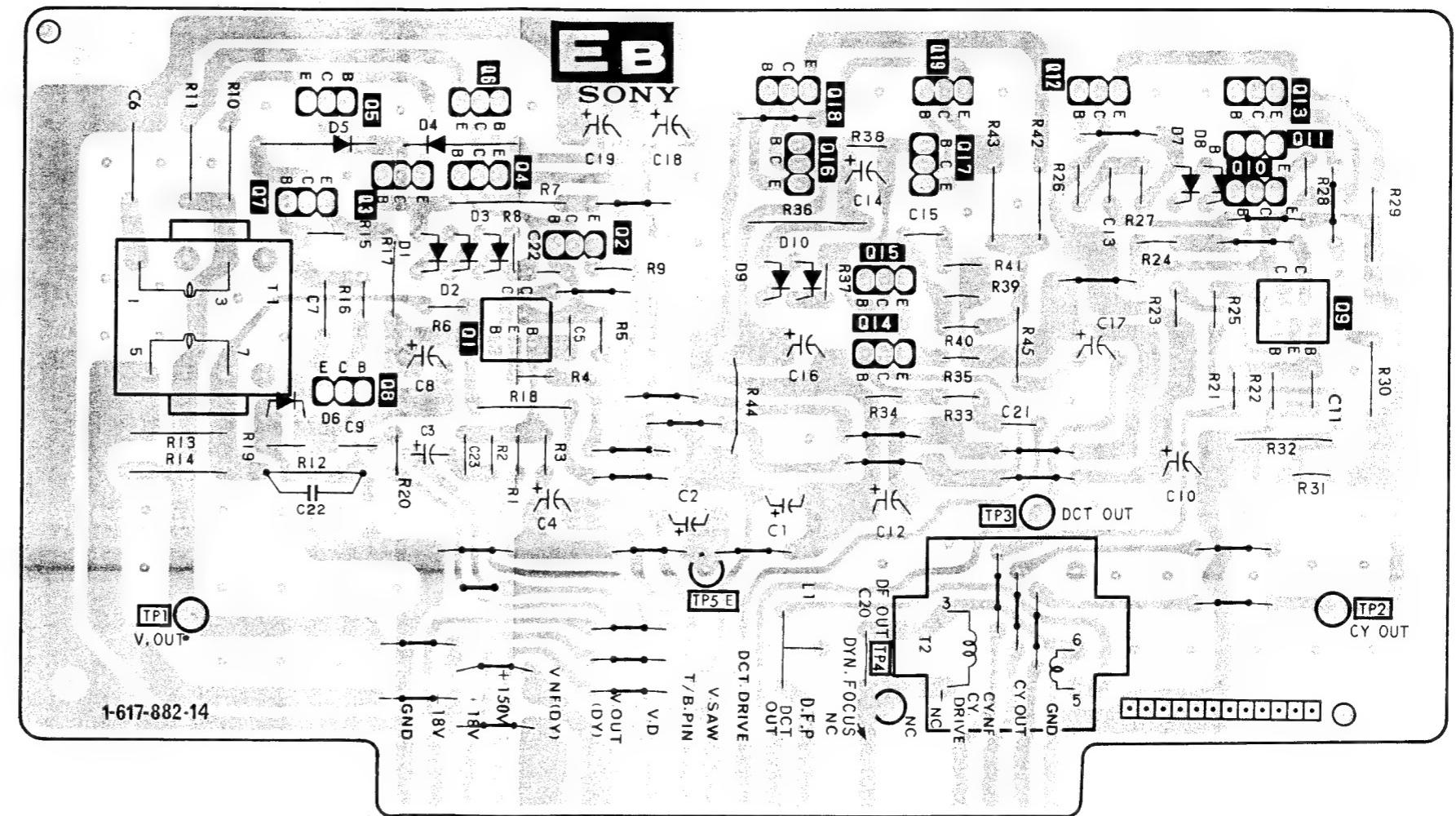
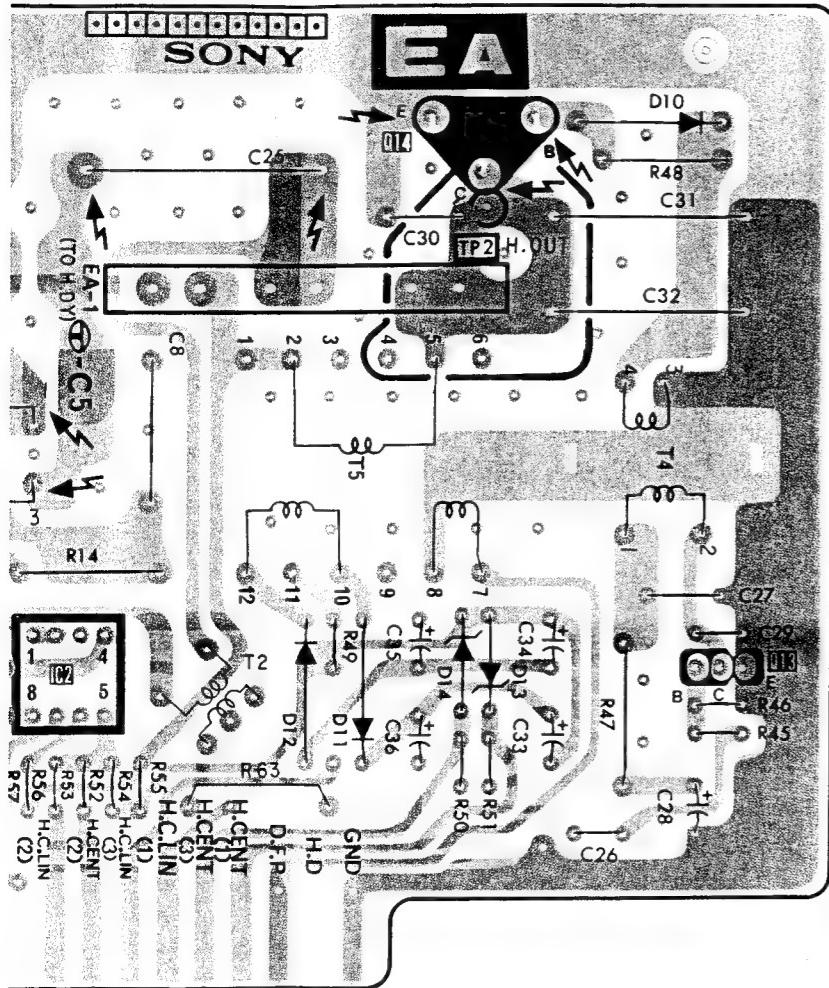
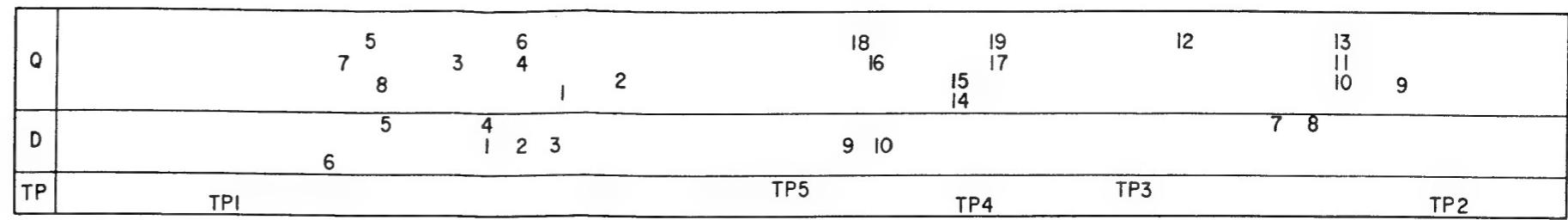
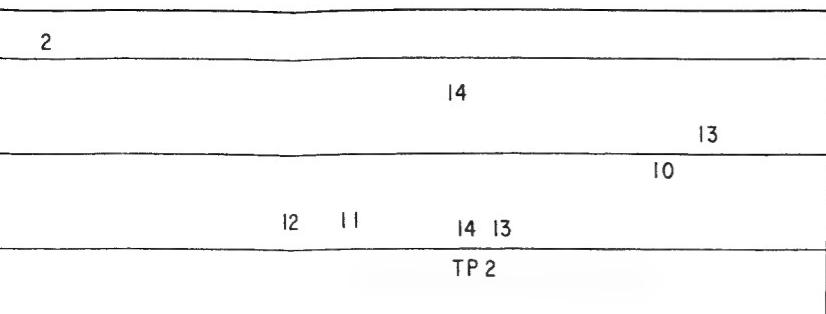
Q		5	6
	7	3	4
	8		2
D		5	4
	6	1	2
TP	TPI		3



5-67

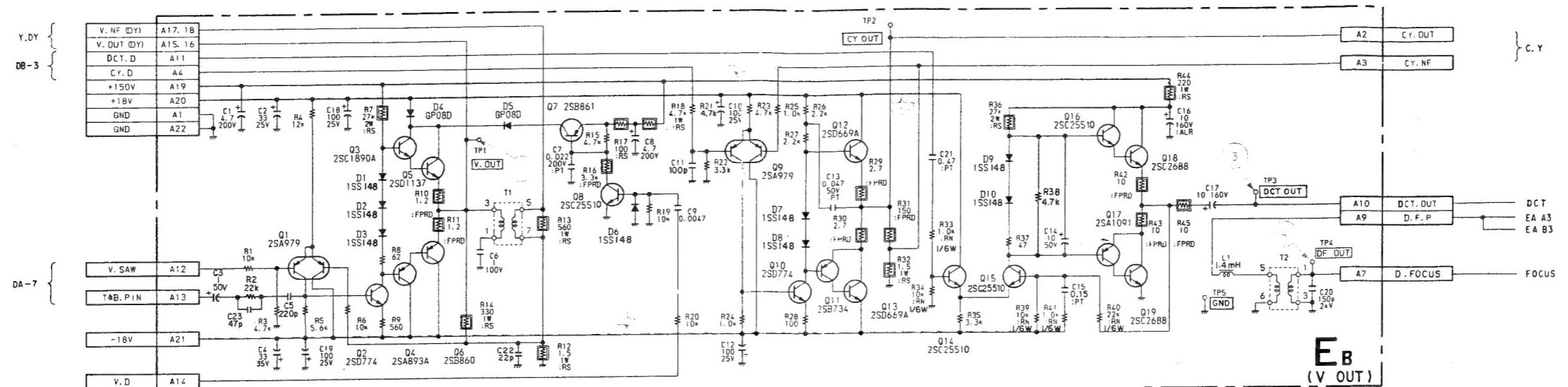
EA, EB EA, EB

EB board (V OUT)

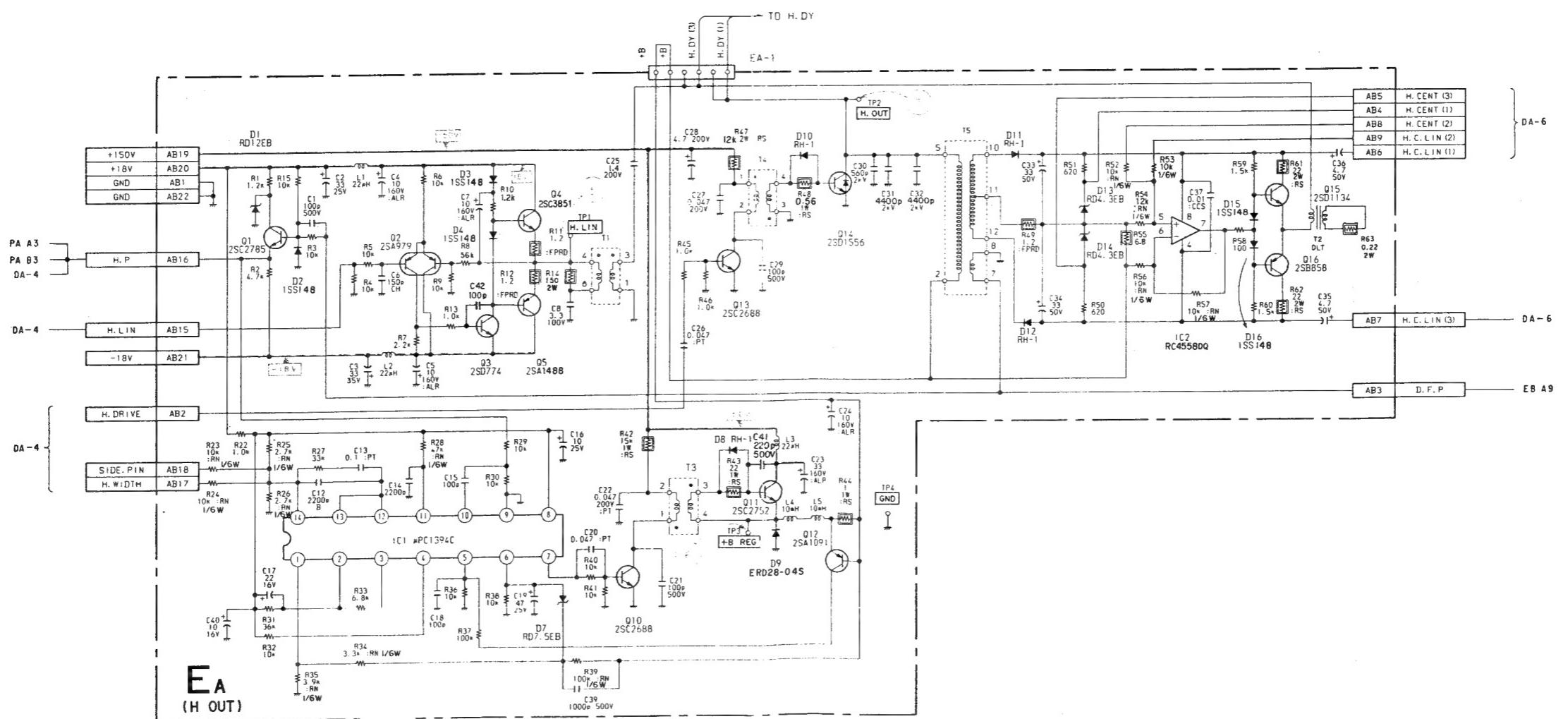


EA, EB EA, EB

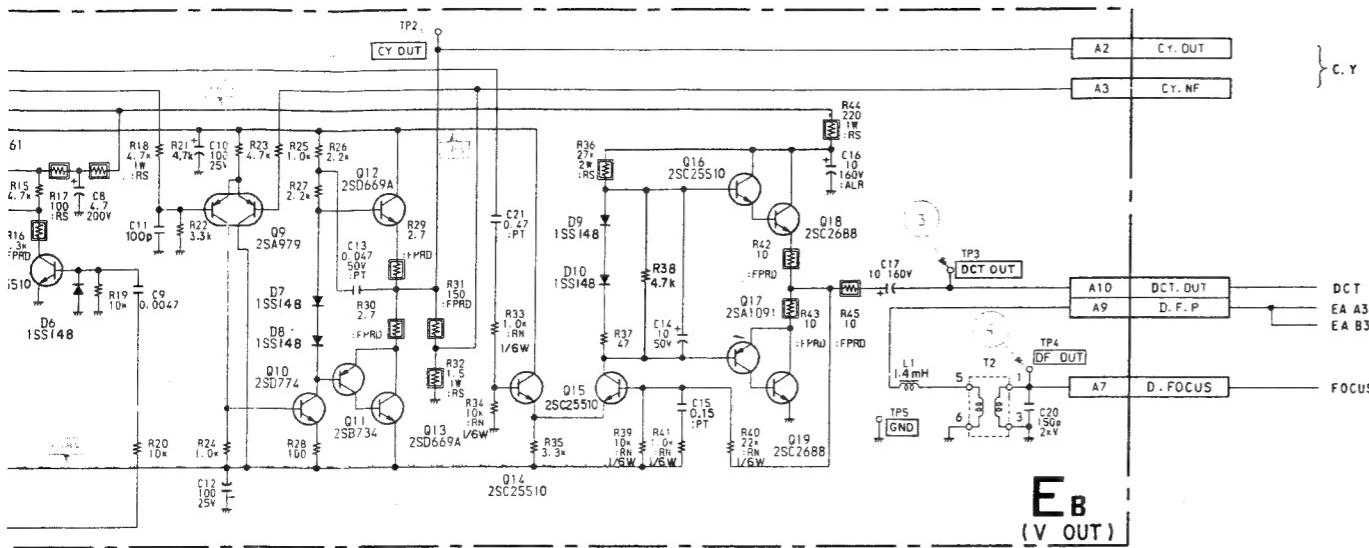
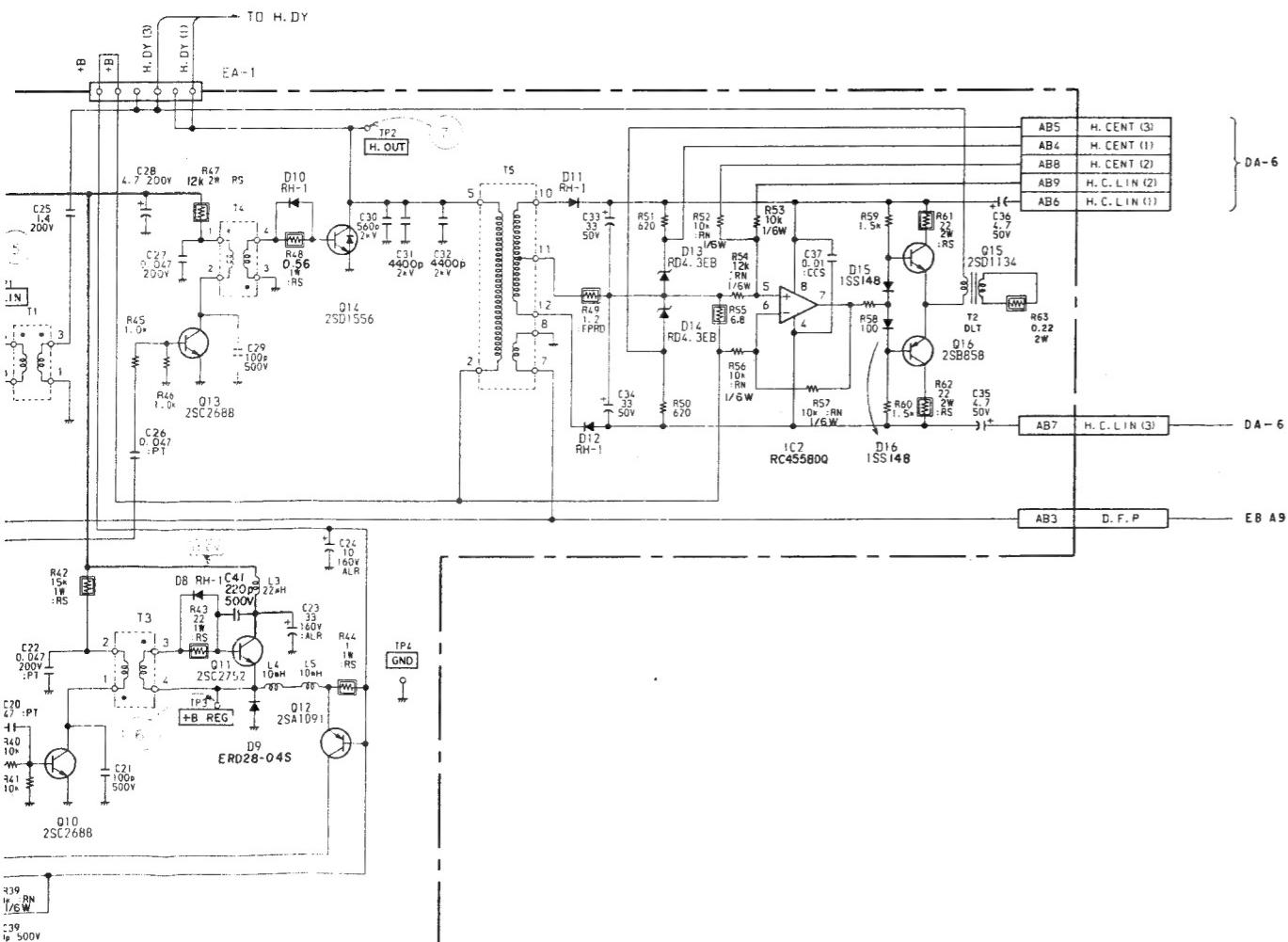
EA board (H OUT)
EB board (V OUT)



E_B
(V OUT)



E_A
(H OUT)

EB
(V OUT)

EA BOARD

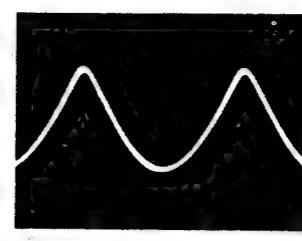
IC1	UPC1394C	P.W.M CONTROL
2	RC4558DQ	H.CENT
Q1	2SC2785	H.PULSE BUFFER
2	2SA979	H.LIN AMP
3	2SD774	H.LIN AMP
4	2SC3851	H.LIN AMP OUT
5	2SA1488	H.LIN AMP OUT
10	2SC2688	P.W.M DRIVE
11	2SC2752	P.W.M OUT
12	2SA1091	O.C.P
13	2SC2688	H.DRIVE
14	2SD1556	H.OUT
15	2SD01134	H.CENT
16	2SB858	H.CENT
D1	RD12E-B	CLIPPER
2	1SS148	PROTECTOR
3	1SS148	BIAS
4	1SS148	BIAS
7	RD7.5E-B	PROTECTOR
8	RH-1	P.W.M DRIVE
9	ERD28-04S	P.W.M SW
10	RH-1	H.DRIVE
11	RH-1	H.P.RECT.
12	RH-1	H.P.RECT.
13	RD4.3E-B	+4.3V REG
14	RD4.3E-B	-4.3V REG
15	1SS148	BIAS
16	1SS148	BIAS

EB BOARD

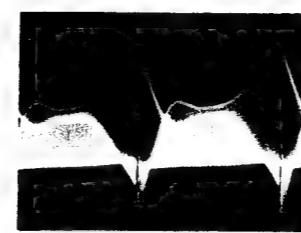
Q1	2SA979	V.AMP
2	2SD774	V.AMP
3	2SC1890A	V.AMP
4	2SA893A	V.AMP
5	2SD1137	V.AMP OUT
6	2SB860	V.AMP OUT
7	2SB861	V.RETRACE SW
8	2SC25510	V.RETRACE SW
9	2SA979	CY.AMP
10	2SD774	CY.AMP
11	2SB734	CY.AMP
12	2SD669A	CY.AMP OUT
13	2SD669A	CY.AMP OUT
14	2SC25510	D.C.T AMP
15	2SC25510	D.C.T AMP
16	2SC25510	D.C.T AMP
17	2SA1091	D.C.T AMP
18	2SC2688	D.C.T AMP OUT
19	2SC2688	D.C.T AMP OUT
D1	1SS148	BIAS
2	1SS148	BIAS
3	1SS148	BIAS
4	GPO8D	DC.STOPPER
5	GPO8D	DC.STOPPER
6	1SS148	PROTECTOR
7	1SS148	BIAS
8	1SS148	BIAS
9	1SS148	BIAS
10	1SS148	BIAS



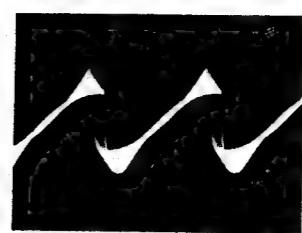
(1) 90Vp-p (V)



(2) 840Vp-p (H)



(3) 0.3Ap-p (V)



(4) 30Vp-p (H)

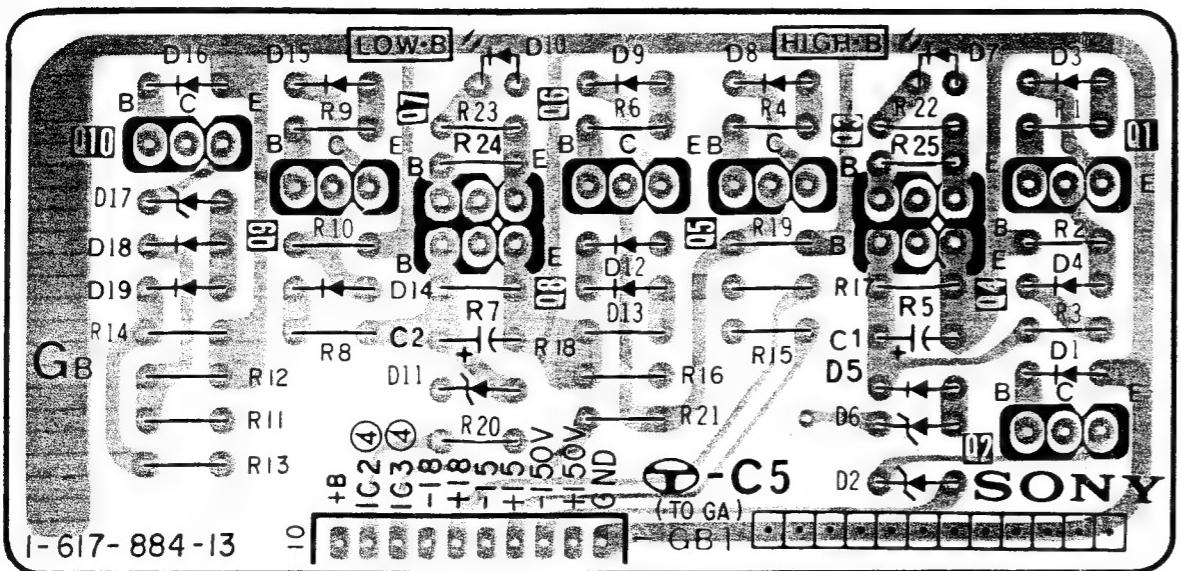


(5) 100Vp-p (H)



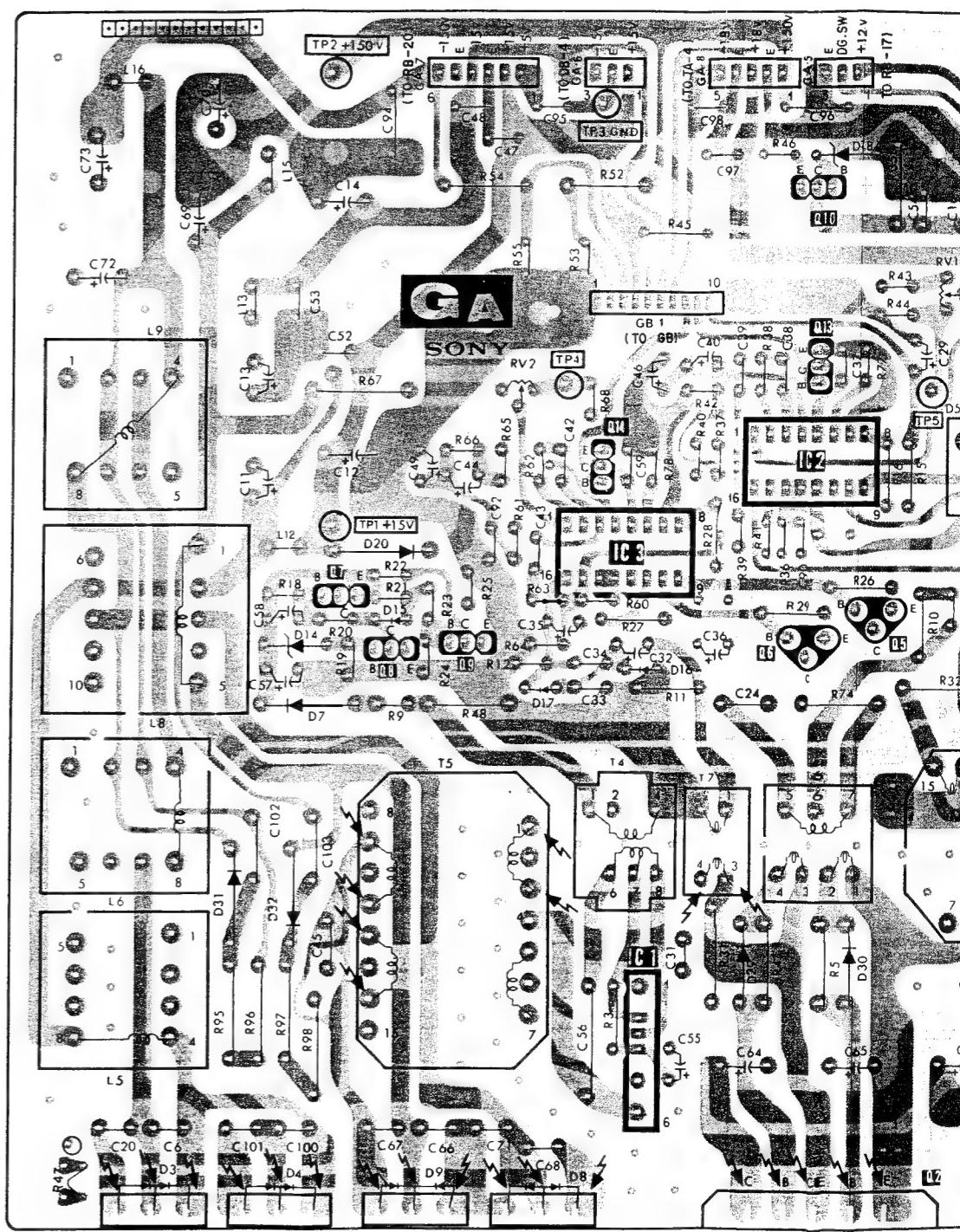
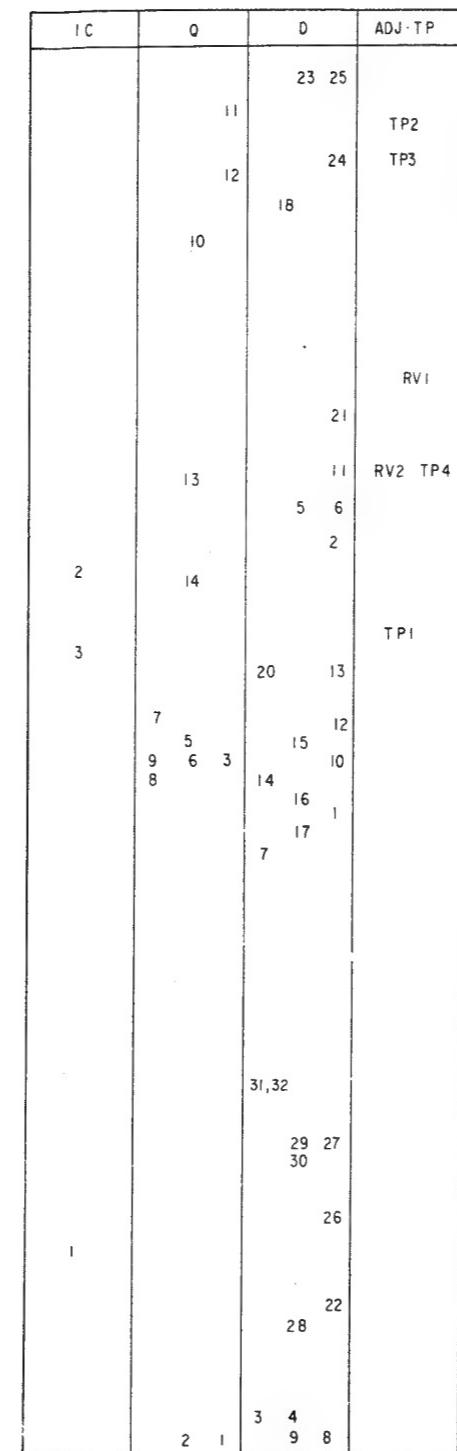
(6) 150Vn-n (H)

GB board (OVER VOLTAGE PROTECTOR)



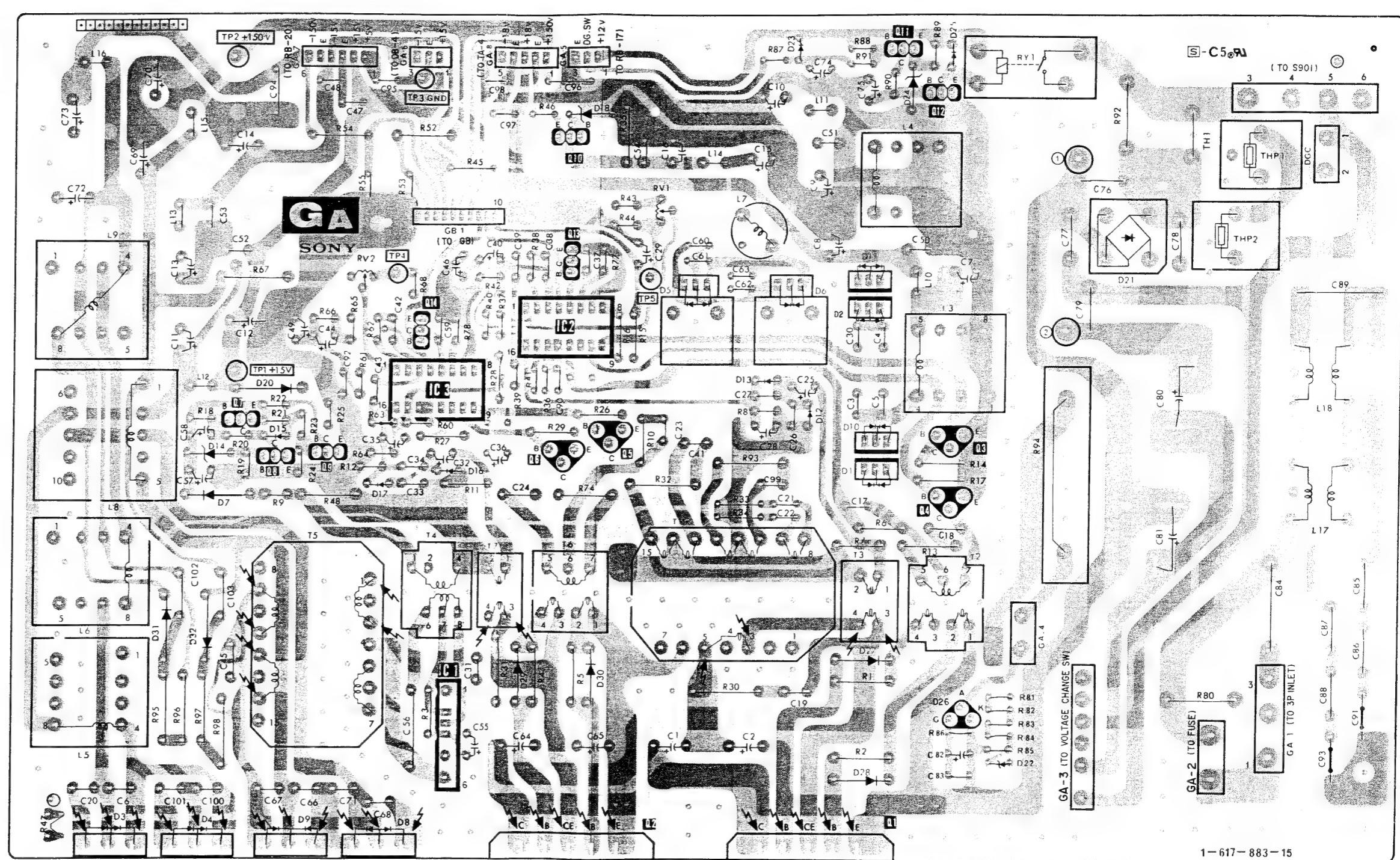
5. DIAGRAMS

GA board (AC RECT, DC REG)



GA board (AC RECT, DC REG)

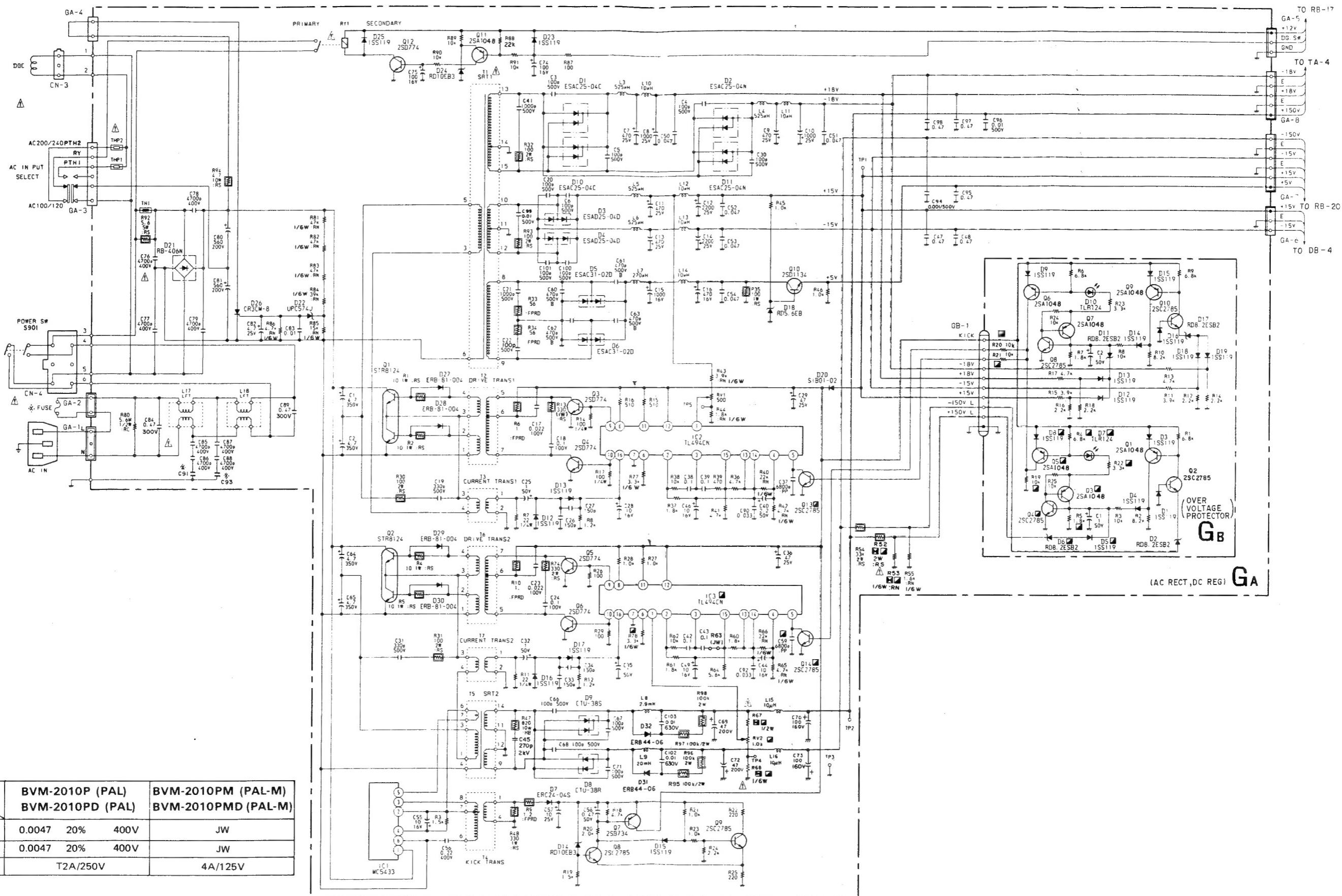
IC	Q	D	ADJ-TP
		23 25	
	11		
	12	24	TP2
	18		TP3
	10		
	21		RV1
	13	11	RV2 TP4
	5 6	2	
	2	14	TPI
	3	20 13	
	7	15 12	
	9 8	16 1	
	14	17	
	7		
	31,32		
	29 27		
	30		
	26		
	22		
	28		
	2	3 4	
	1	9 8	

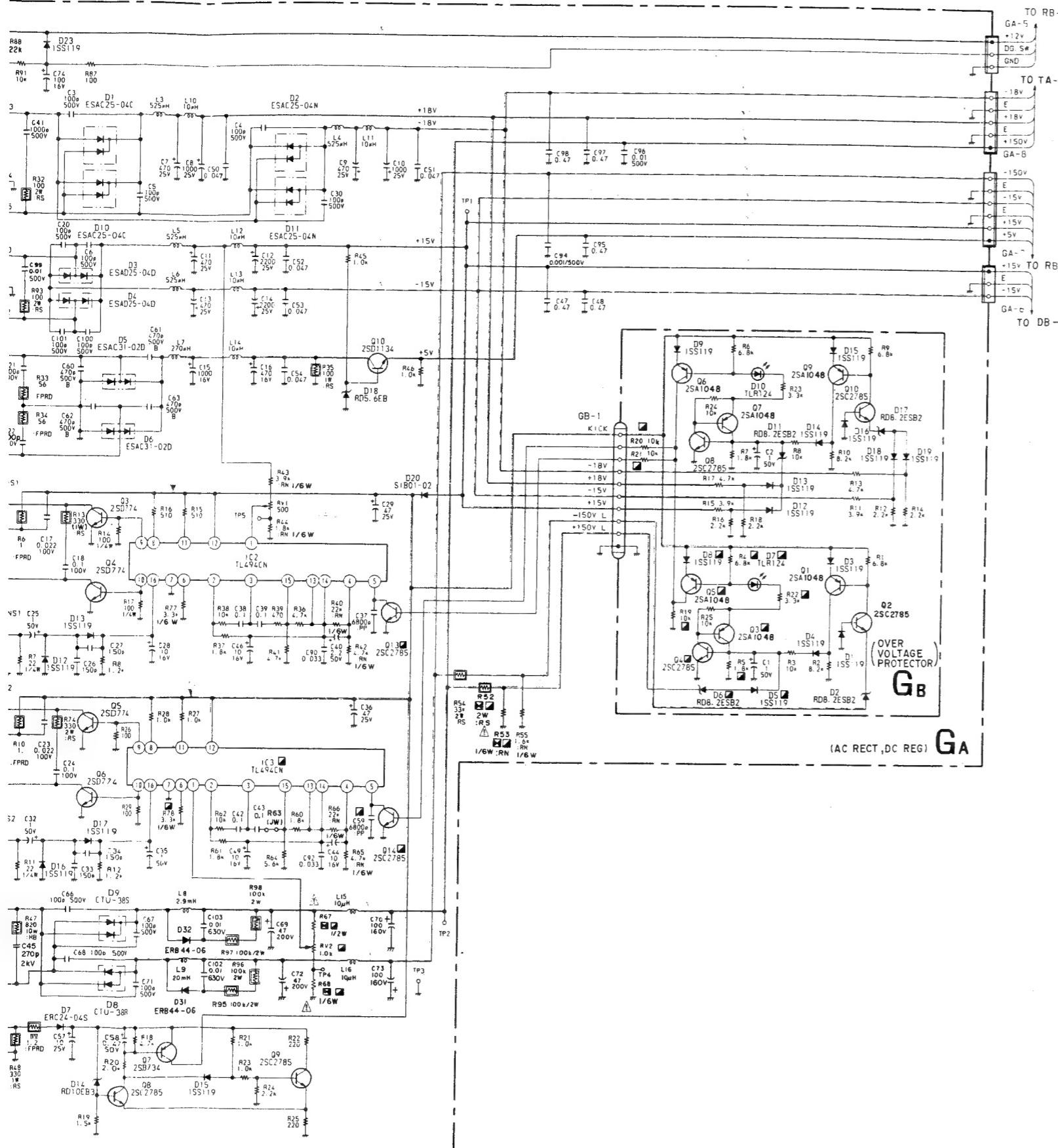


- : Conductor side pattern
- : Component side pattern

GA, GB GA, GB

GA board (AC RECT, DC REG)
GB board (OVER VOLTAGE PROTECTOR)





GA BOARD

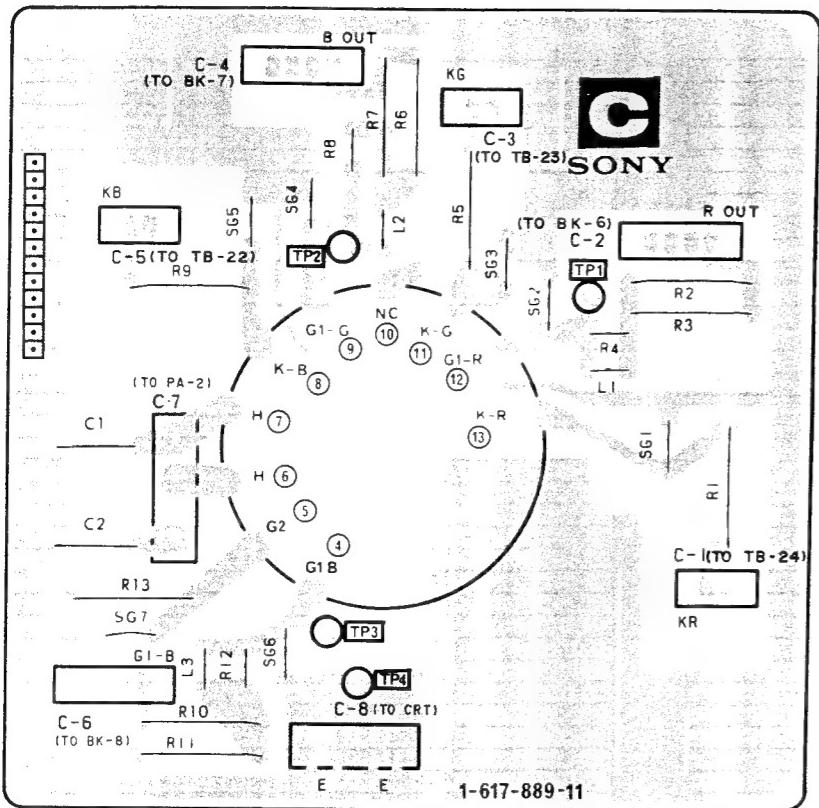
IC1	MC5433	STARTER
2	TL494CN	DC REG
3	TL494CN	DC REG
Q1	STR8124	DC-DC CONV.
2	STR8124	DC-DC CONV.
3	2SD774	CONV. DRIVE
4	2SD774	CONV. DRIVE
5	2SD774	CONV. DRIVE
6	2SD774	CONV. DRIVE
7	2SB734	SOFT. START
8	2SC2785	SOFT. START
9	2SC2785	SOFT. START
10	2SD1134	+5V REG.
11	2SA1048	D.G. CONTROL
12	2SD774	D.G. CONTROL
13	2SC2785	O.V.P SW
14	2SC2785	O.V.P SW
D1	ESAC25-04C	+18V RECT
2	ESAC25-04N	-18V RECT
3	ESAD25-04D	+15V RECT
4	ESAD25-04D	-15V RECT
5	ESAC31-02D	+5V RECT
6	ESAC31-02D	-5V RECT
7	ERC24-045	START. RECT
8	CTU-38R	-150V RECT
9	CTU-38S	+150V RECT
10	ESAC25-04C	+18V RECT
11	ESAC25-04N	-18V RECT
12	1SS119	O.C.P RECT
13	1SS119	O.C.P RECT
14	RD10EB3T	STARTER
15	1SS119	STARTER
16	1SS119	O.C.P RECT
17	1SS119	O.C.P RECT
18	RD5.6E-02TN	+5V REG
20	SIB01-02	DC. STOPPER
21	RB406N	AC RECT
22	uPC574J	O.V.P
23	1SS119	DISCHARGE
24	RD10EB3T	+10V REG
25	1SS119	SW PROTECT
26	CR3CM-8	O.V.P
27	ERB81-004	CONV. DRIVE
28	ERB81-004	CONV. DRIVE
29	ERB81-004	CONV. DRIVE
30	ERB81-004	CONV. DRIVE
31	ERB44-06	
32	ERB44-06	

GB BOARD

1	2SA1048	O.V.P (-150V)
2	2SC2785	O.V.P (-150V)
3	2SA1048	O.V.P (+150V)
4	2SC2785	O.V.P (+150V)
5	2SA1048	O.V.P (+150V)
6	2SA1048	O.V.P (+15V)
7	2SA1048	O.V.P (+15V)
8	2SC2785	O.V.P (+15V)
9	2SA1048	O.V.P (-15V)
10	2SC2785	O.V.P (-15V)
D1	1SS119	PROTECTOR
2	RD8.2ES-T1B2	REFERENCE
3	1SS119	PROTECTOR
4	1SS119	MIX.
5	1SS119	MIX.
6	RD8.2ES-T1B2	REFERENCE
7	TLR124	O.V.P INDICATE
8	1SS119	PROTECTOR
9	1SS119	PROTECTOR
10	TLR124	O.V.P INDICATE
11	RD8.2ES-T1B2	REFERENCE
12	1SS119	MIX.
13	1SS119	MIX.
14	1SS119	MIX.
15	1SS119	PROTECTOR
16	1SS119	PROTECTOR
17	RD8.2ES-T1B2	REFERENCE
18	1SS119	MIX.
19	1SS119	MIX.

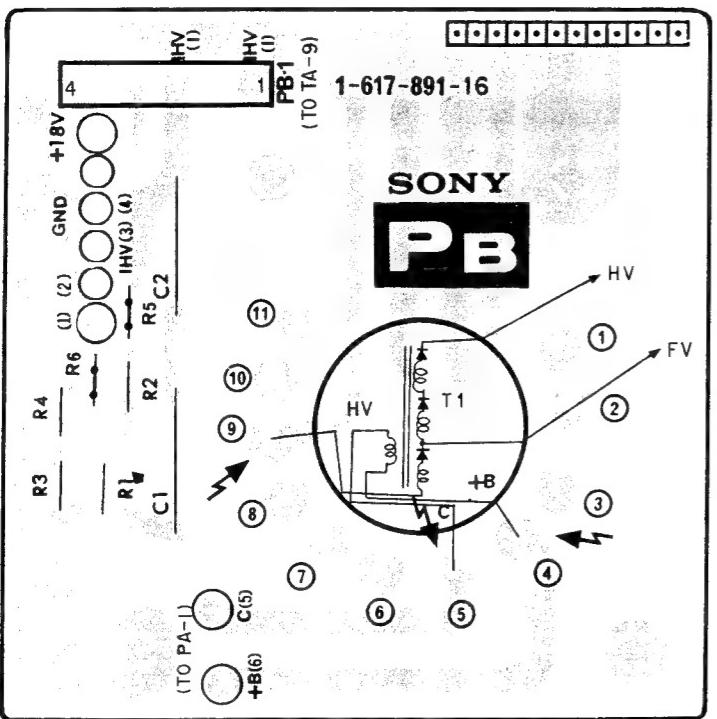
C, PA, PB

C board (CRT SOCKET)



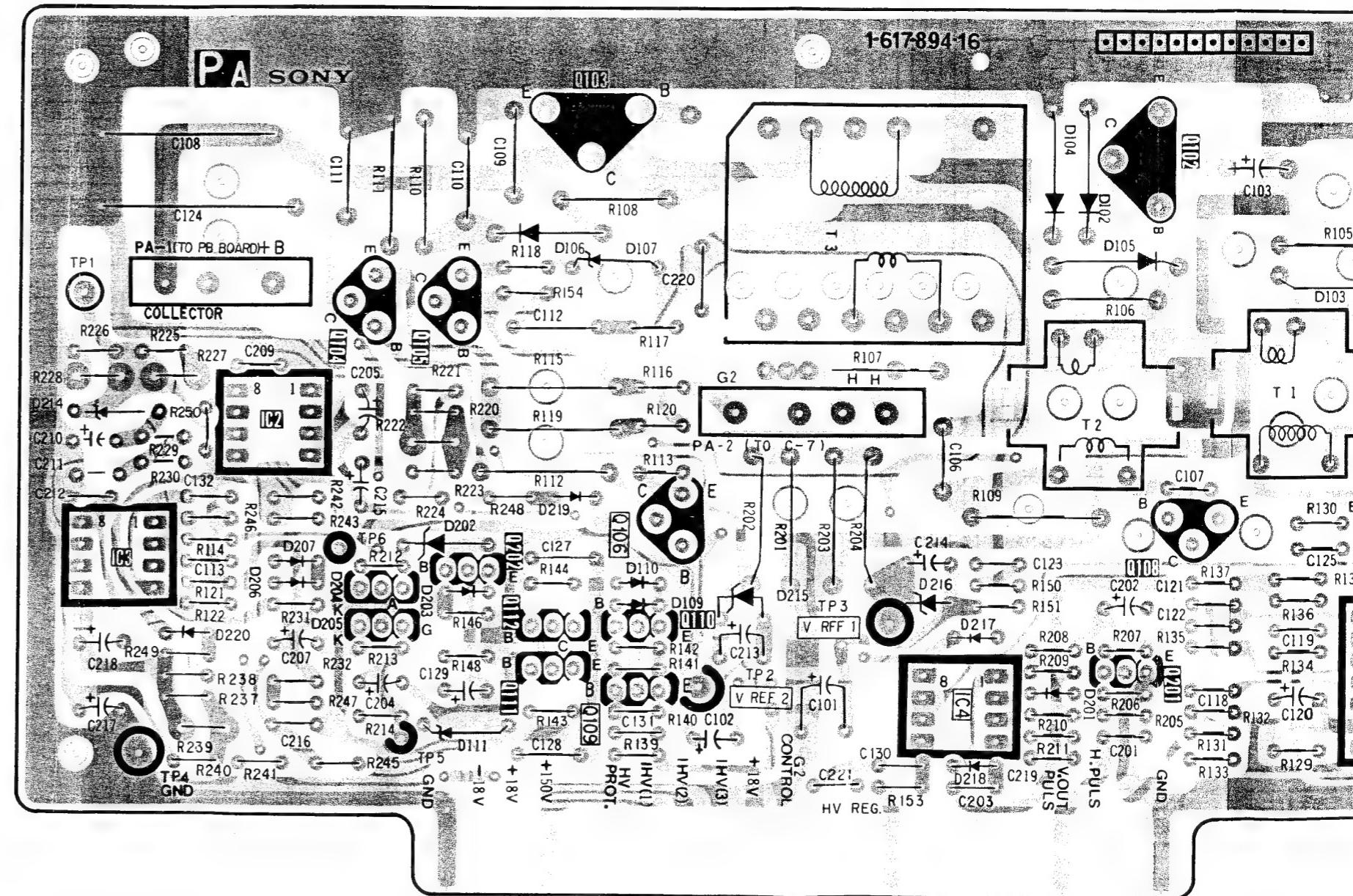
5. DIAGRAMS

PB board (FBT)



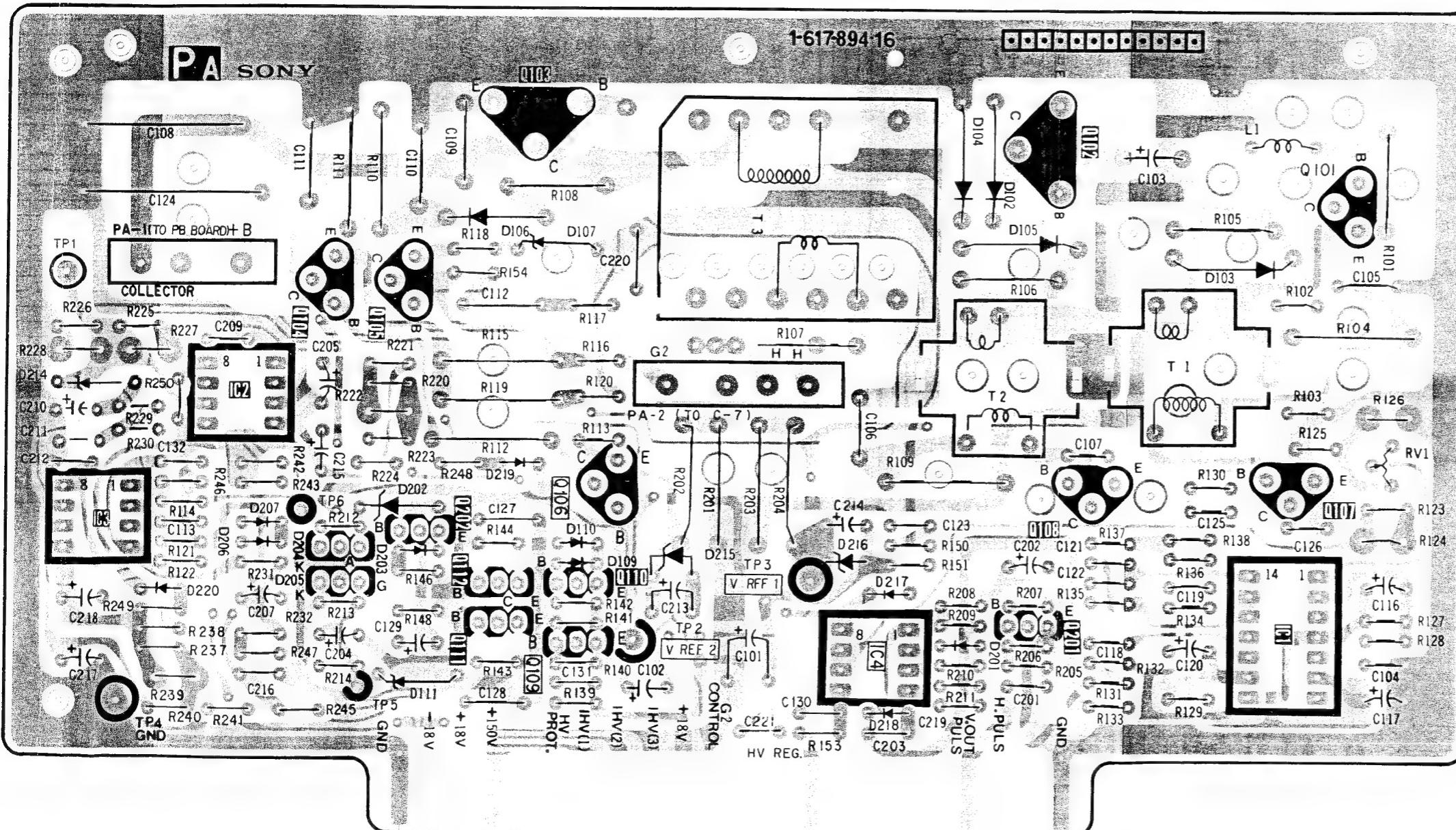
PA board (HIGH VOLTAGE PROTECTOR)

IC	2	3	4
Q	104	105	103
D	202	202	106
TP	207	204	202
	206	205	203
RV	106	107	104
	219	110	102
	215	109	201
	216	218	105
	217	217	108
	201	201	



C, PA, PB C, PA, PB

HIGH VOLTAGE PROTECTOR



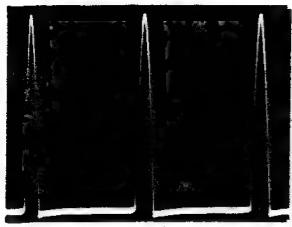
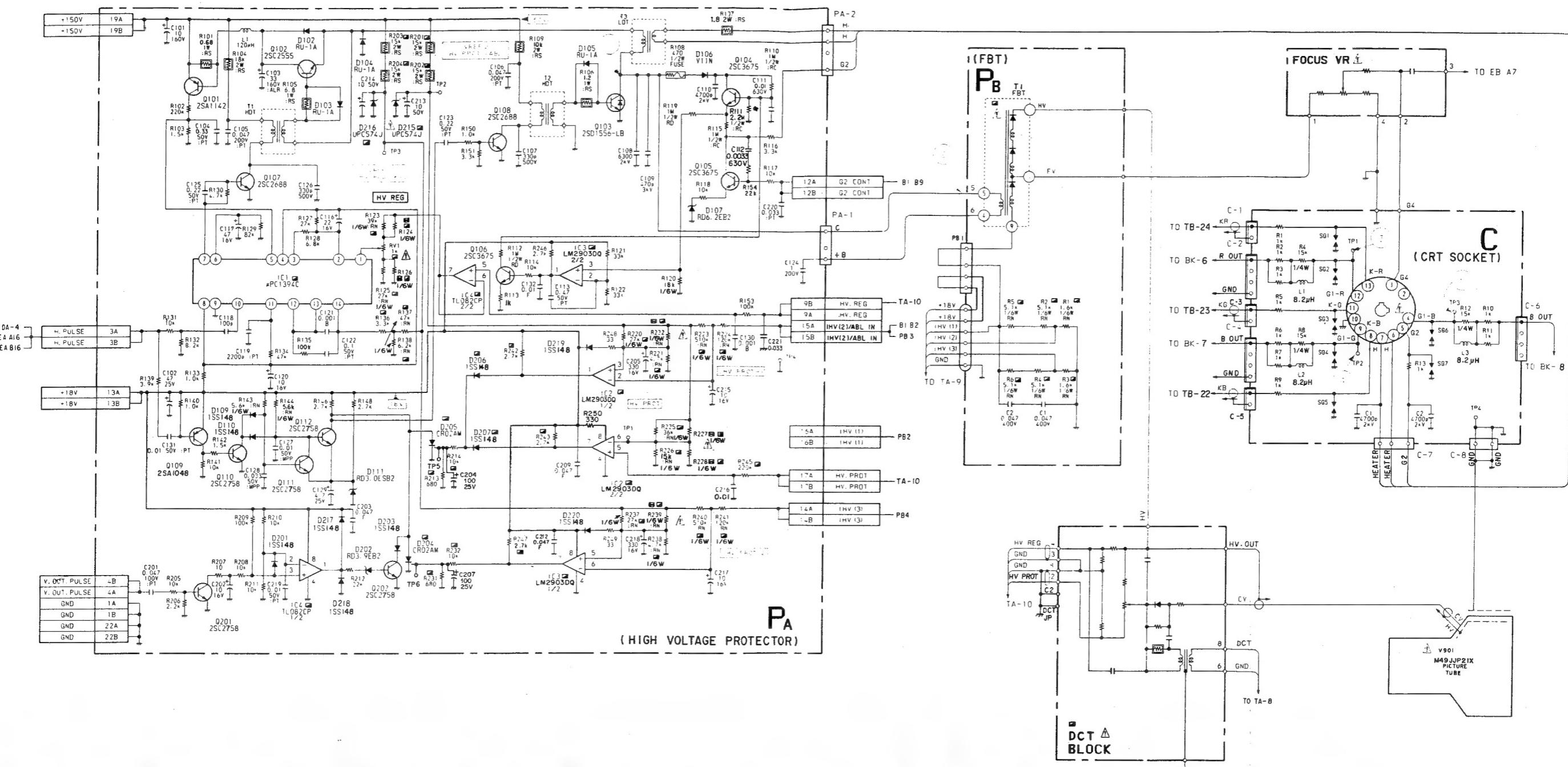
PA BOARD

IC1	uPC1394C	P.W.M CONTROL
2	LM2903DQ	COMPARATOR
3	LM2903DG	COMPARATOR
4	TL082CP	BUFFER & COMPARATOR
Q101	2SA1142	O.V.P
102	2SC2555	DC-DC CONV.
103	2SD1556	HV CONV.
104	ZSC3675	G2 REGULATOR
105	ZSC3675	G2 REGULATOR
106	ZSC3675	G2 REGULATOR
107	ZSC2688	DC-DC CONV. DRIVE
108	ZSC2688	HV CONV. DRIVE
109	2SA1048	HV CONV. DRIVE
110	ZSC2785	HV CONV. DRIVE
111	ZSC2785	HV CONV. DRIVE
112	ZSC2785	HV CONV. DRIVE
201	ZSC2785	CRT PROTECTOR
202	ZSC2785	CRT PROTECTOR
D102	RU-1A	DC-DC CONV.
103	RU-1A	DC-DC CONV.
104	RU-1A	DC-DC CONV.
105	RU-1A	HV CONV. DRIVE
106	V11N	RECTIFIER
107	RD6.2EB2	G2 CONTROL
109	ISS148	HV CONV. DRIVE
110	ISS148	HV CONV. DRIVE
111	RD3.0ESB2	HV CONV. DRIVE
201	ISS148	PROTECTOR
202	RD3.9EB2	CRT PROTECTOR
203	ISS148	CRT PROTECTOR
204	CRO2AM	PROTECTOR
205	CRO2AM	PROTECTOR
206	ISS148	MIX
207	ISS148	MIX
215	uPC574J	HV PROT. REF.
216	uPC574J	HV PROT. REF.
217	ISS148	PROT
218	ISS148	PROT
219	ISS148	PROT
220	ISS148	PROT

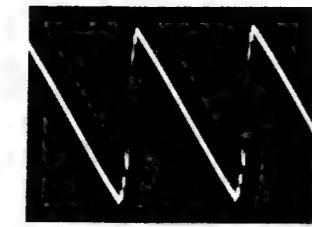
- : Conductor side pattern
 - : Component side pattern

C, PA, PB C, PA, PB

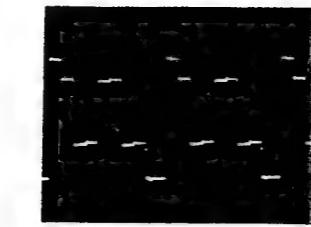
C board (CRT SOCKET)
PA board (HIGH VOLTAGE PROTECTOR)
PB board (FBT)



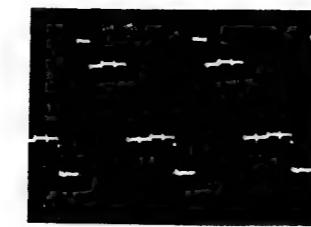
1.120Vp-p (H)



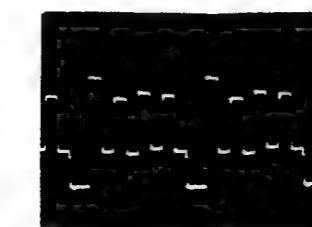
② 2.4Ap-p (H)



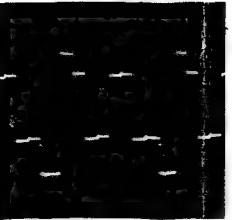
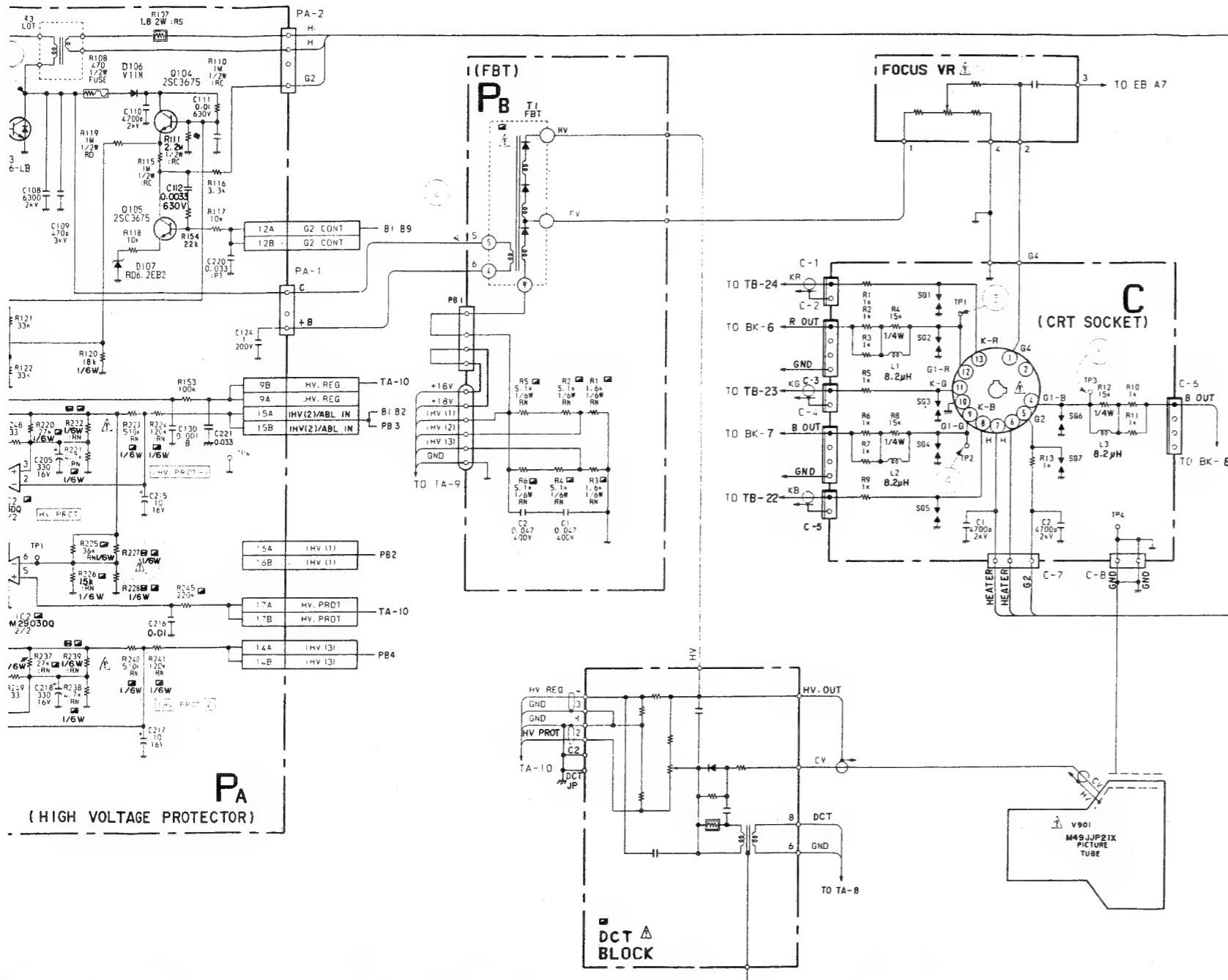
③ 64Vp-p (H)



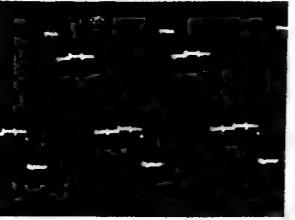
④ 68Vp-p (H)



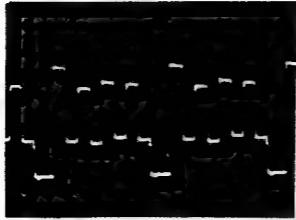
⑤ 61Vp-p (H)



68Vp-p (H)



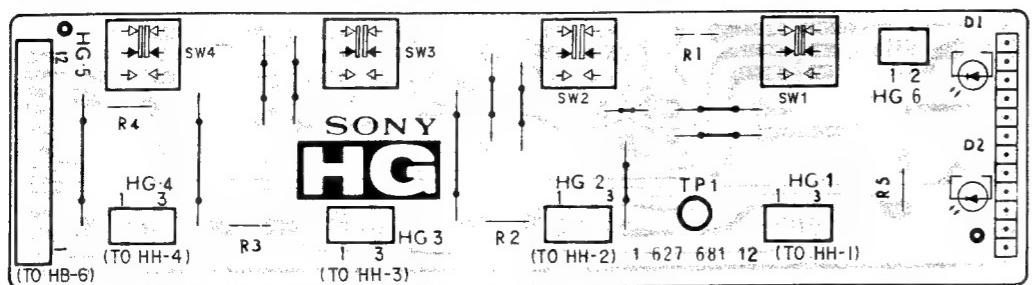
68Vp-p (H)



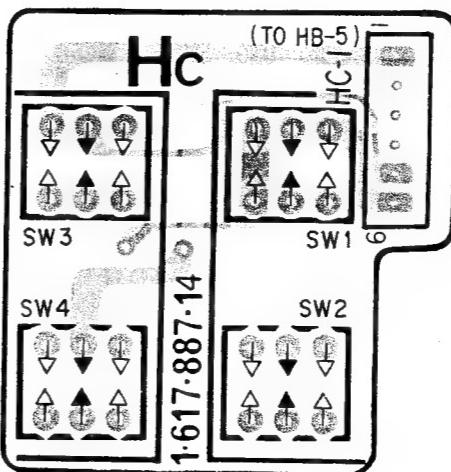
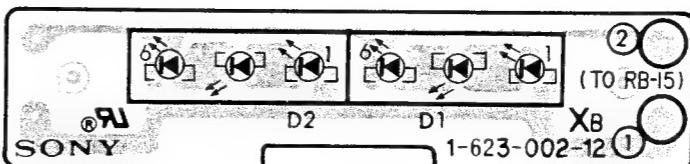
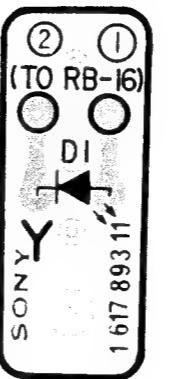
61Vp-p (H)

HG board (CONTROL PANEL 2)

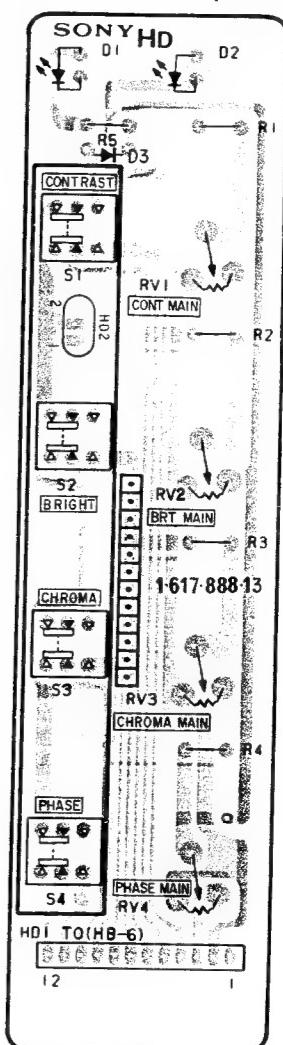
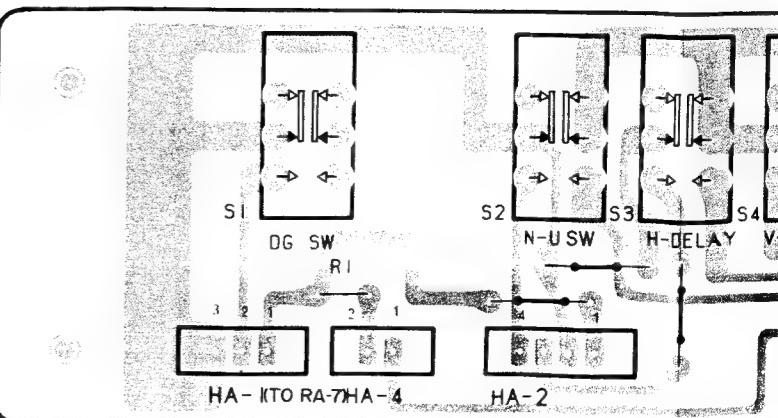
(Serial No. 2,001,081 and Higher (BVM-2010P only))
 (Serial No. 2,000,004 and Higher (BVM-2010PM only))
 (Serial No. 2,000,042 and Higher (BVM-2010PD only))
 (Serial No. 2,000,001 and Higher (BVM-2010PMD only))

**HH board (CONTROL PANEL 1)**

(Serial No. 2,001,081 and Higher (BVM-2010P only))
 (Serial No. 2,000,004 and Higher (BVM-2010PM only))
 (Serial No. 2,000,042 and Higher (BVM-2010PD only))
 (Serial No. 2,000,001 and Higher (BVM-2010PMD only))

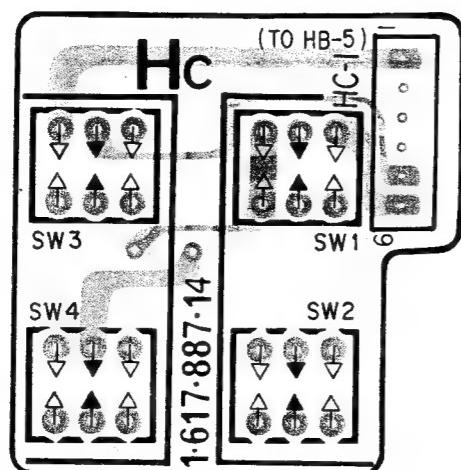
**HC board (INPUT SELECT)****XB board (TALLY)****Y board (POWER LED)****HD board (MANUAL CONTROL)**

(Serial No. Up to 2,001,080 (BVM-2010P only))
 (Serial No. Up to 2,000,041 (BVM-2010PD only))
 (Serial No. Up to 2,000,003 (BVM-2010PM only))

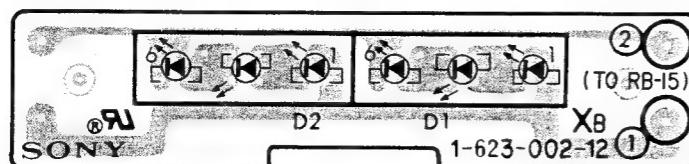
**HA board (LEFT CONTROL PANEL)**

HA, HB, HC, HD, HH, HG, XB, Y HA, HB, HC, HD, HH, HG, XB, Y

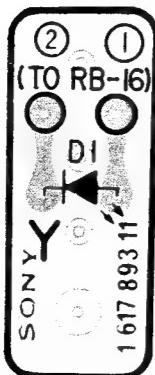
HC board (INPUT SELECT)



XB board (TALLY)

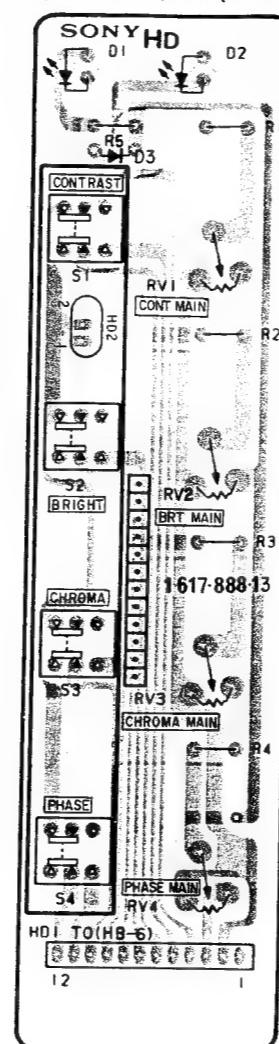


Y board (POWER LED)

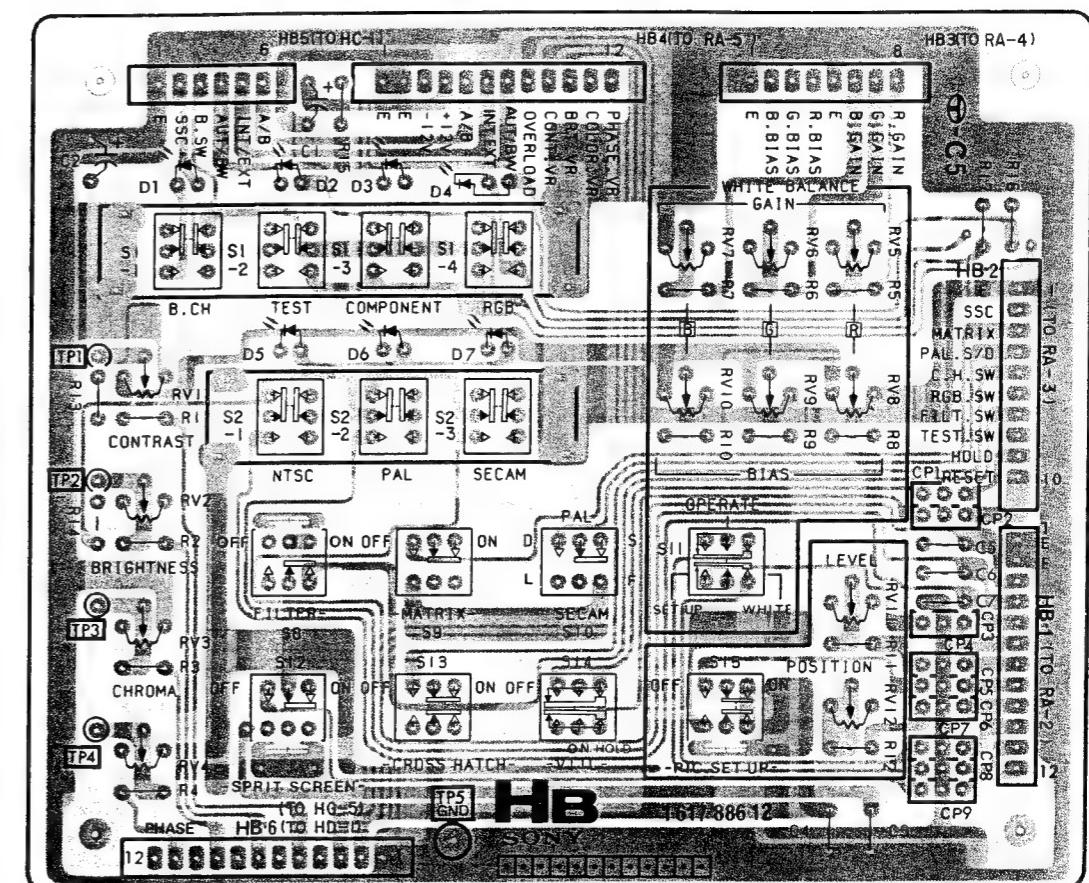


HD board (MANUAL CONTROL)

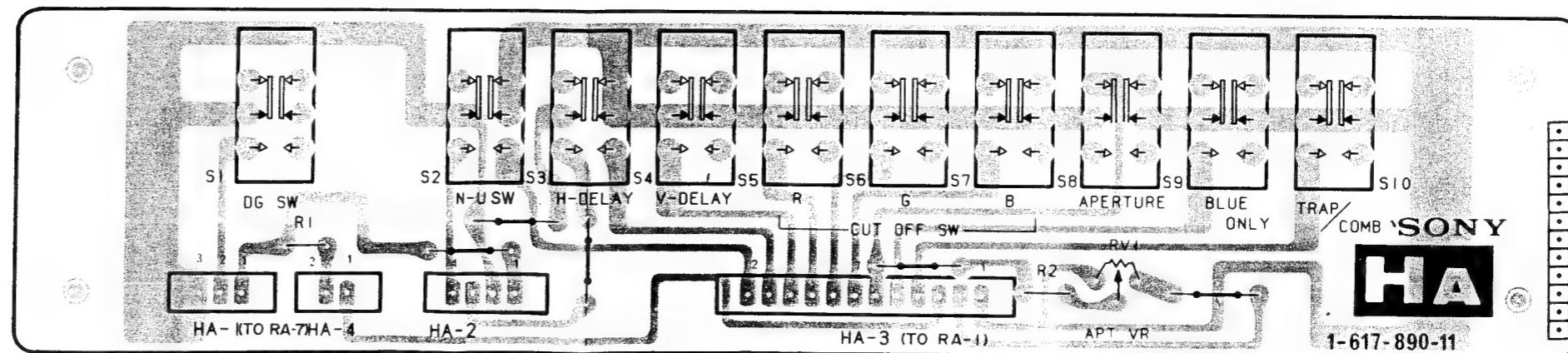
(Serial No. Up to 2,001,080 (BVM-2010P only))
(Serial No. Up to 2,000,041 (BVM-2010PD only))
(Serial No. Up to 2,000,003 (BVM-2010PM only))



HB board (SYSTEM SWITCH)

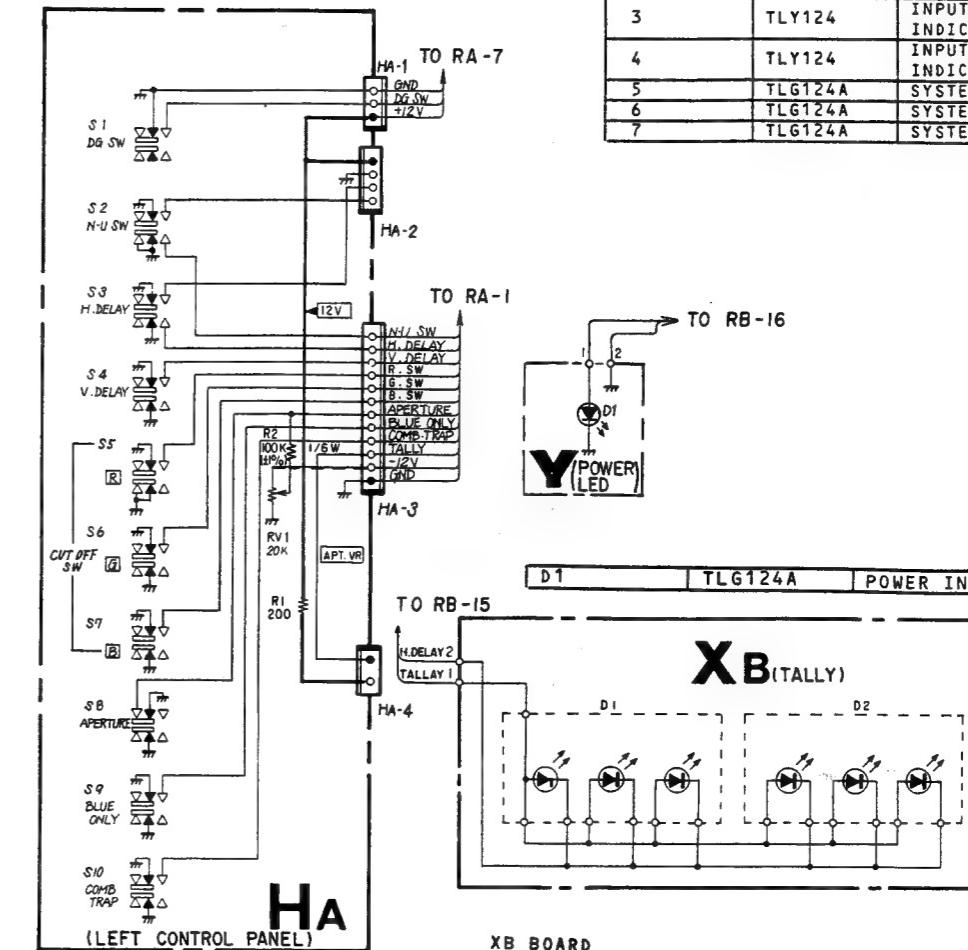
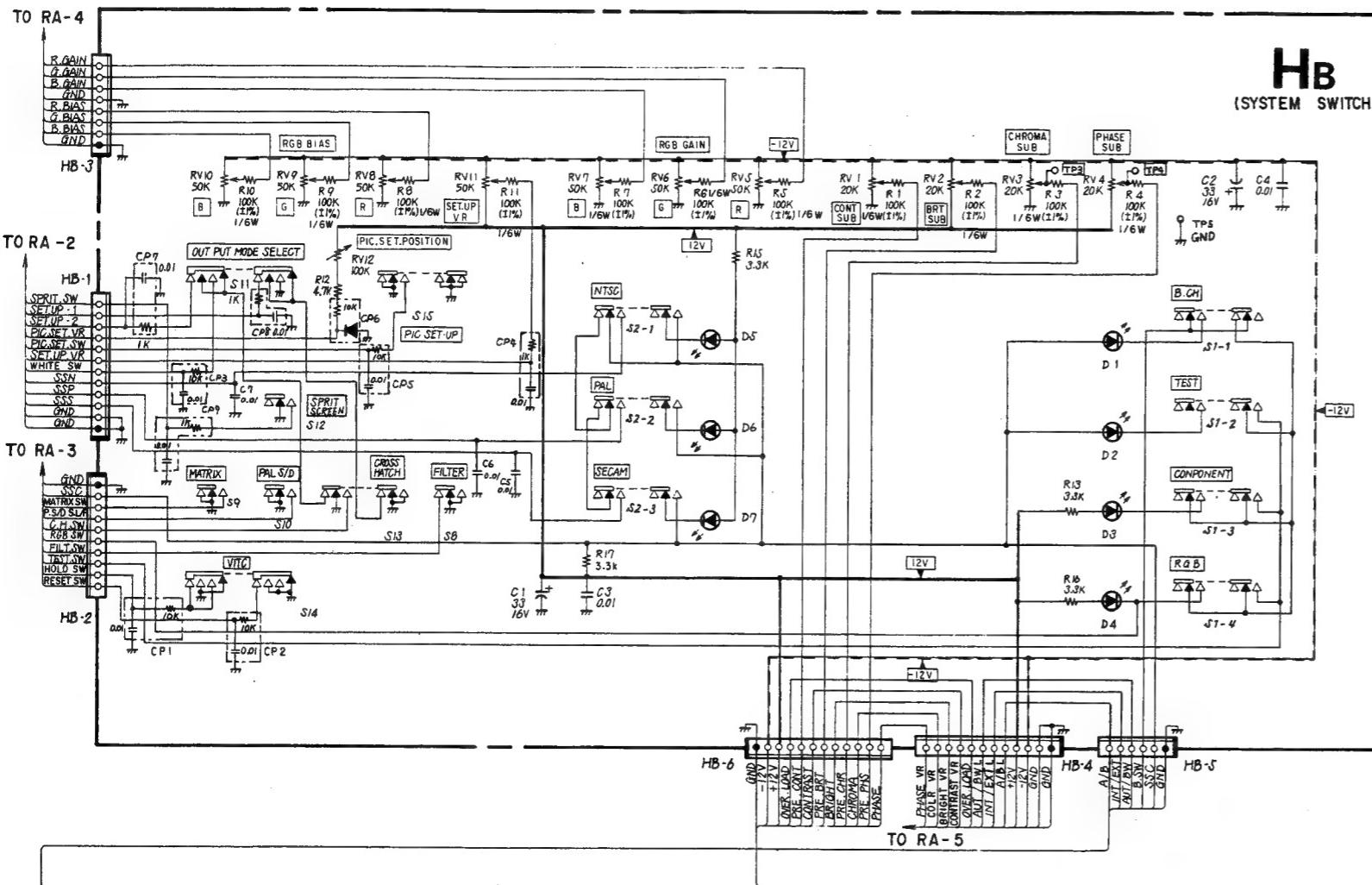


HA board (LEFT CONTROL PANEL)

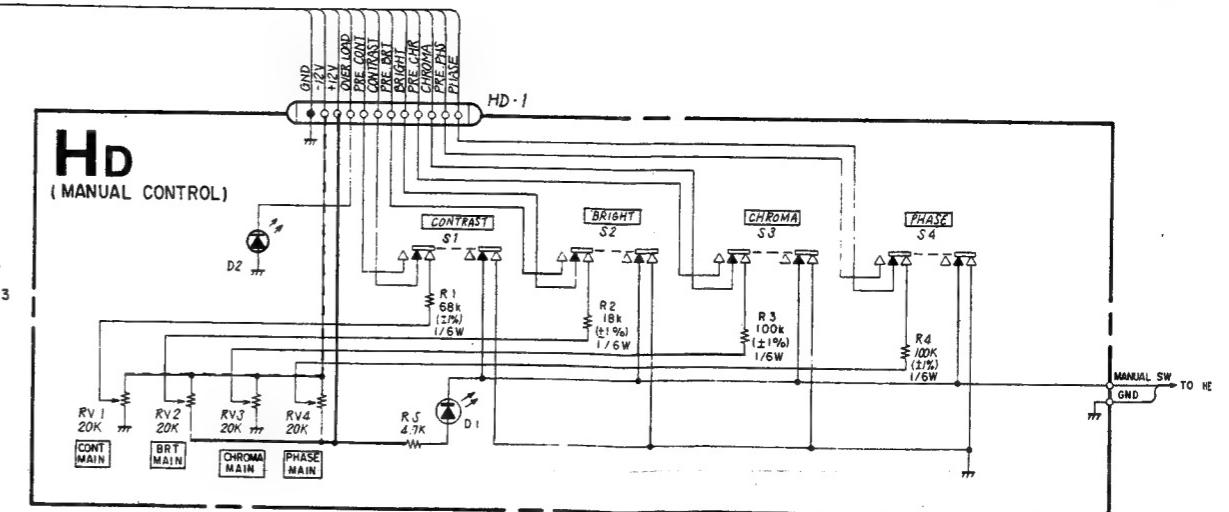
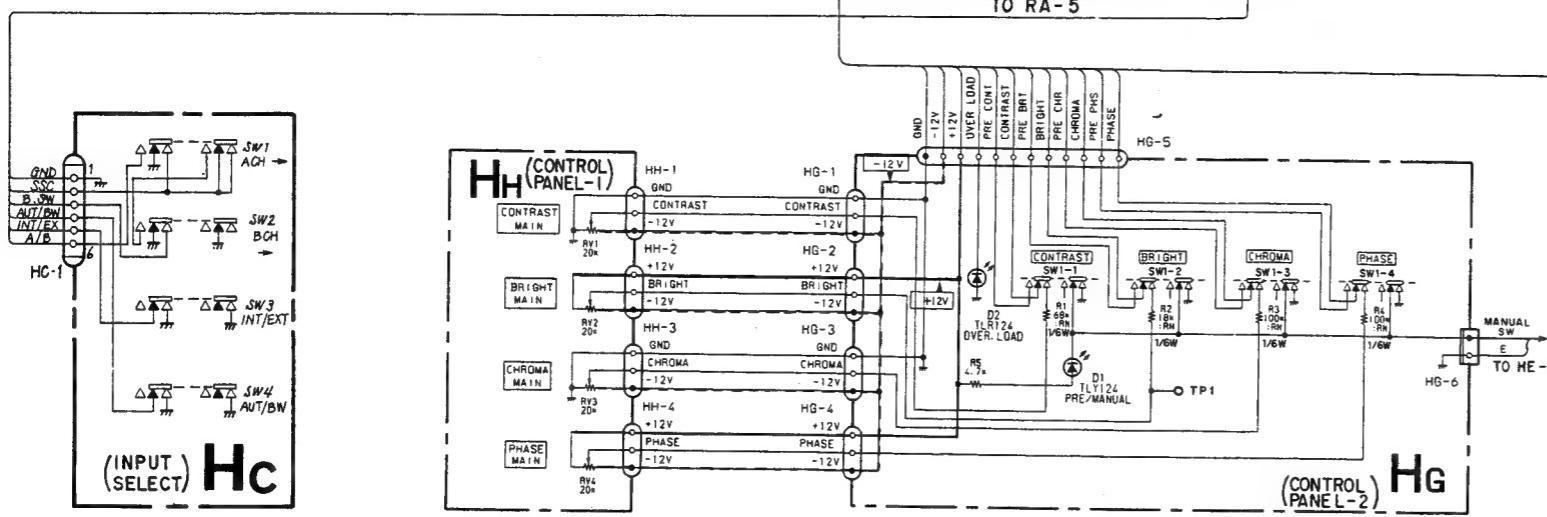


HA, HB, HC, HD, HH, HG, XB, Y HA, HB, HC, HD, HH, HG, XB, Y

HA board (LEFT CONTROL PANEL), HB board (SYSTEM SWITCH), HC board (INPUT SELECT) , HG board (CONTROL PANEL 2)
 HD board (MANUAL CONTROL), XB board (TALLY), Y board (POWER LED) , HH board (CONTROL PANEL 1)



D1	TLY124	INPUT MODE INDICATOR
2	TLY124	INPUT MODE INDICATOR
3	TLY124	INPUT MODE INDICATOR
4	TLY124	INPUT MODE INDICATOR
5	TLG124A	SYSTEM INDICATOR
6	TLG124A	SYSTEM INDICATOR
7	TLG124A	SYSTEM INDICATOR



*HH & HG board

- (Serial No. 2,001,081 and Higher (BVM-2010P only))
- (Serial No. 2,000,004 and Higher (BVM-2010PM only))
- (Serial No. 2,000,042 and Higher (BVM-2010PD only))
- (Serial No. 2,000,001 and Higher (BVM-2010PMD only))

HD/HG BOARD

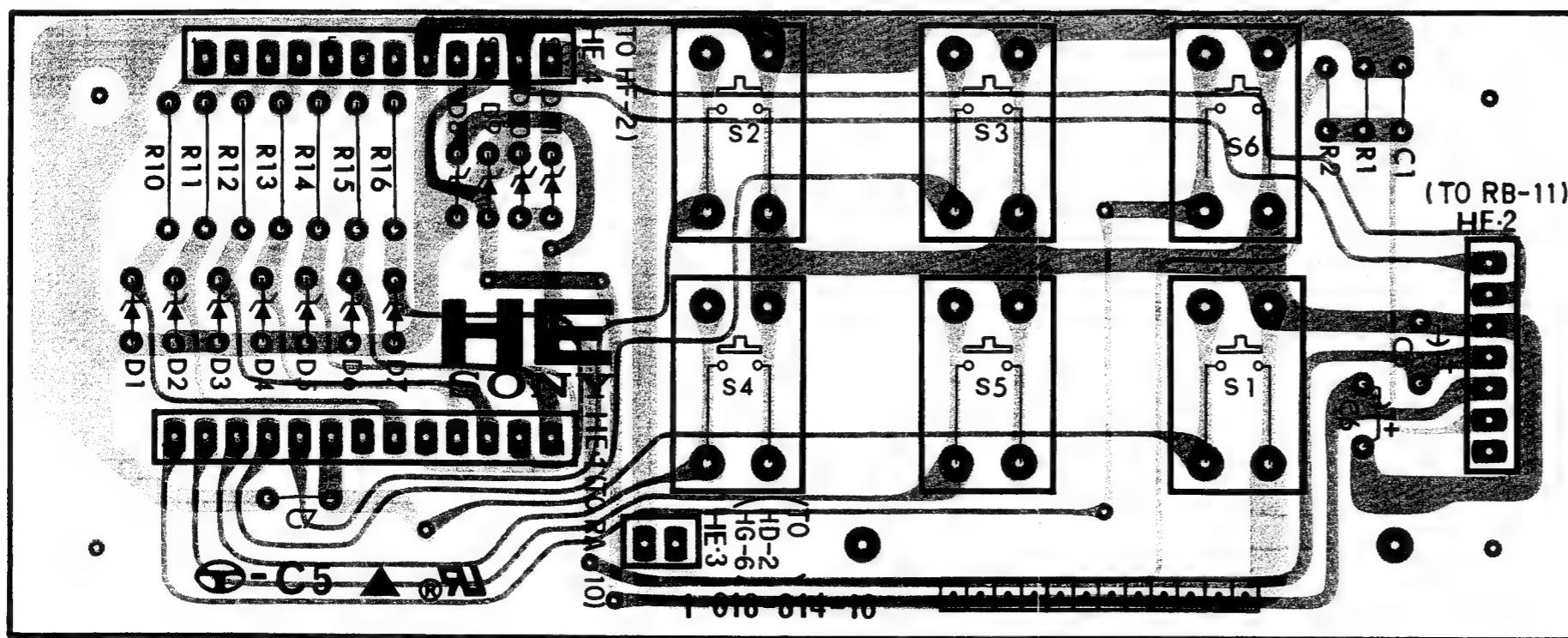
D1	TLY124	PRE/MANUAL INDICATOR
2	TLR124	OVER LOAD INDICATOR

*HD board

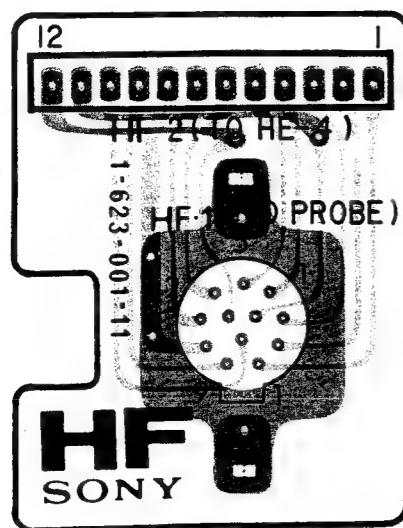
- (Serial No. Up to 2,001,080 (BVM-2010P only))
- (Serial No. Up to 2,000,041 (BVM-2010PD only))
- (Serial No. Up to 2,000,003 (BVM-2010PM only))

HE, HF HE, HF

HE board (AUTO-SET-UP CONTROL)



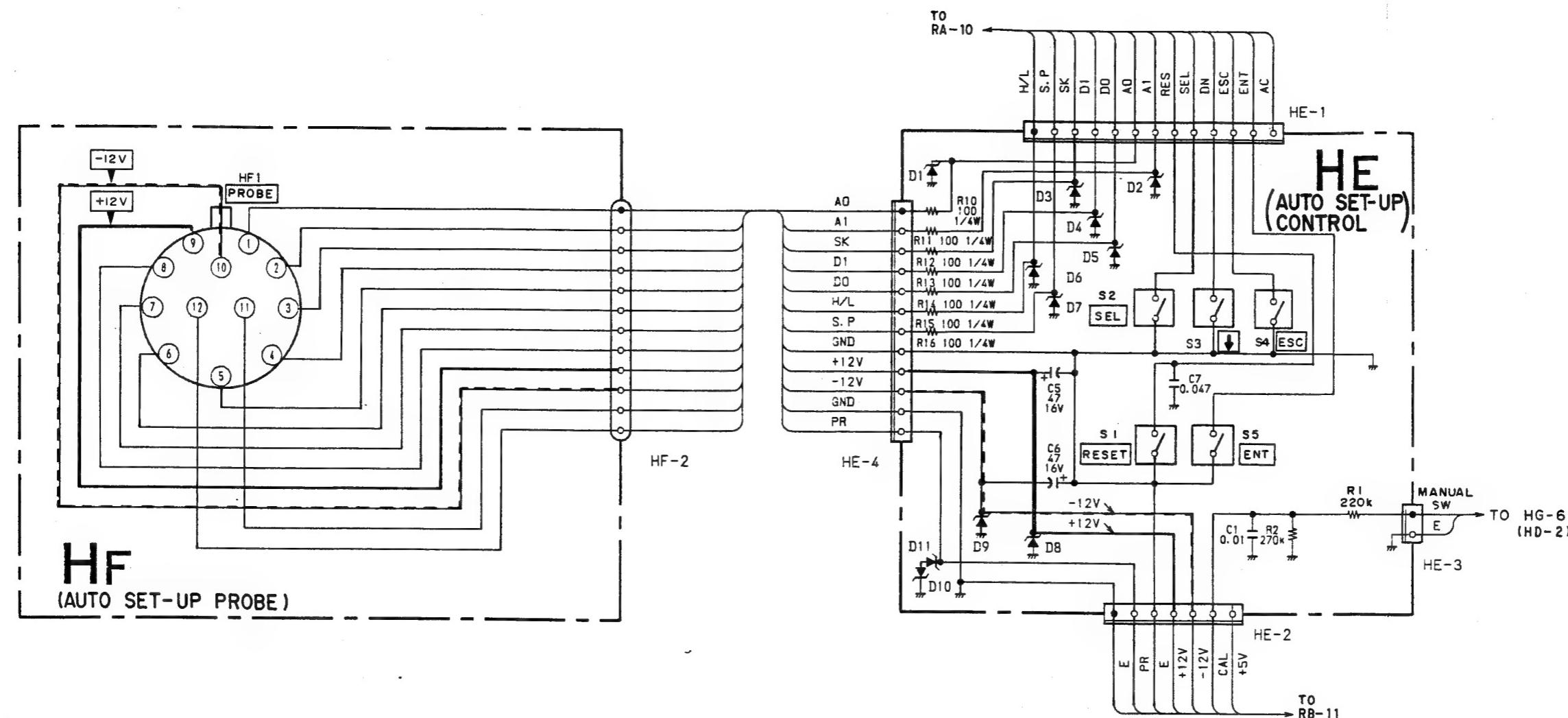
HF board (AUTO-SET-UP PROBE)



- Conductor side pattern
- Component side pattern

HE, HF HE, HF

HE board (AUTO-SET-UP CONTROL)
HF board (AUTO-SET-UP PROBE)

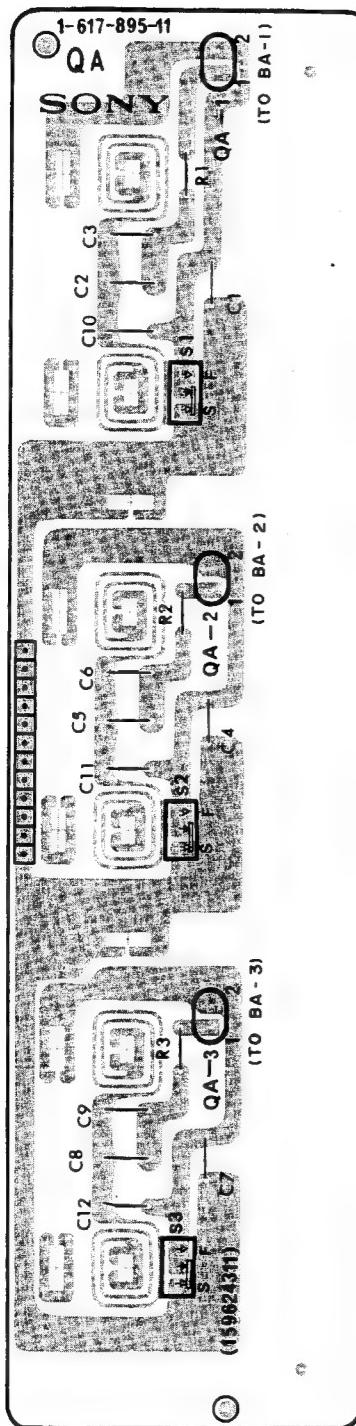


HE board

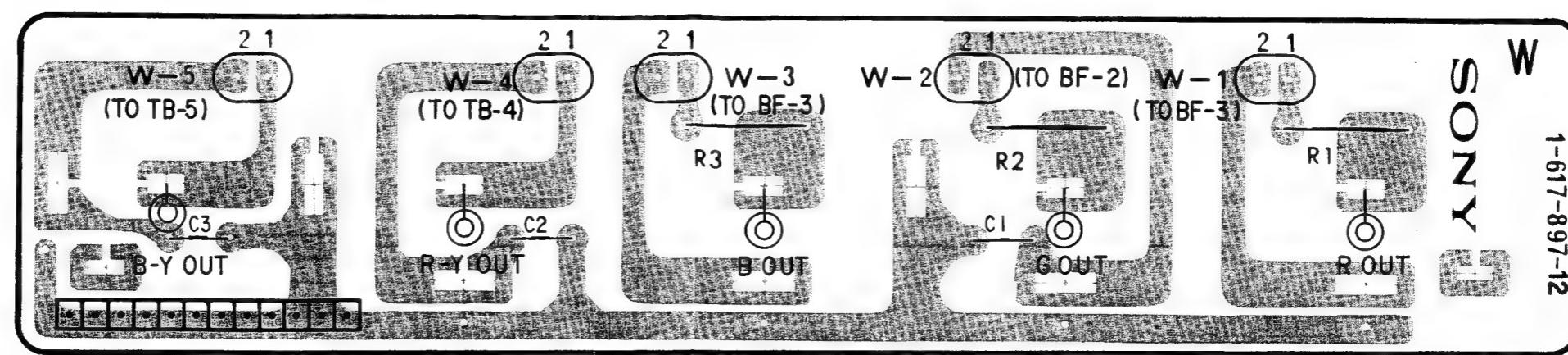
D	1	RD5.6ES-B2	PROTECTOR
2	RD5.6ES-B2	PROTECTOR	
3	RD5.6ES-B2	PROTECTOR	
4	RD5.6ES-B2	PROTECTOR	
5	RD5.6ES-B2	PROTECTOR	
6	RD5.6ES-B2	PROTECTOR	
7	RD5.6ES-B2	PROTECTOR	
8	RD13ES-B2	PROTECTOR	
9	RD13ES-B2	PROTECTOR	
10	RD13ES-B2	PROTECTOR	
11	RD13ES-B2	PROTECTOR	

GC, QA, QB, V, W GC, QA, QB, V, W

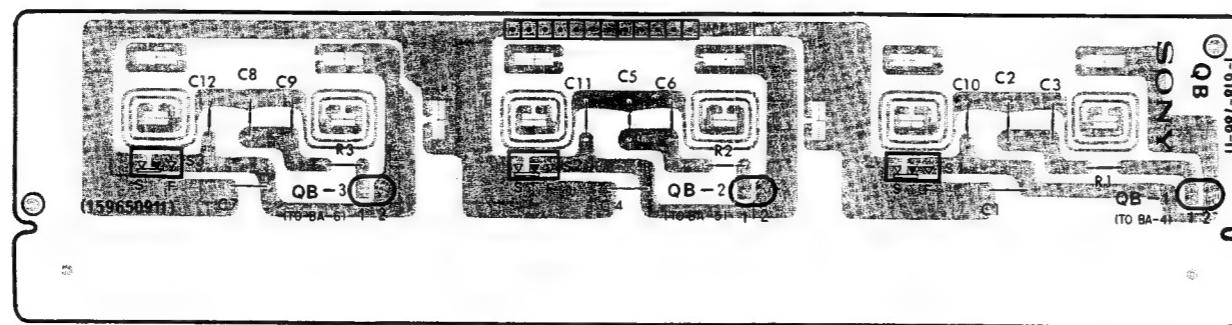
QA board (COMPOSITE VIDEO INPUT)



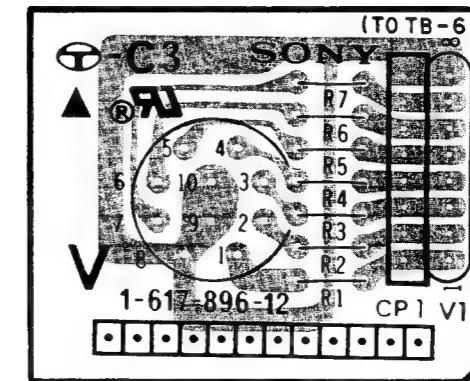
W board (RGB/COMPONENT & VECTOR)



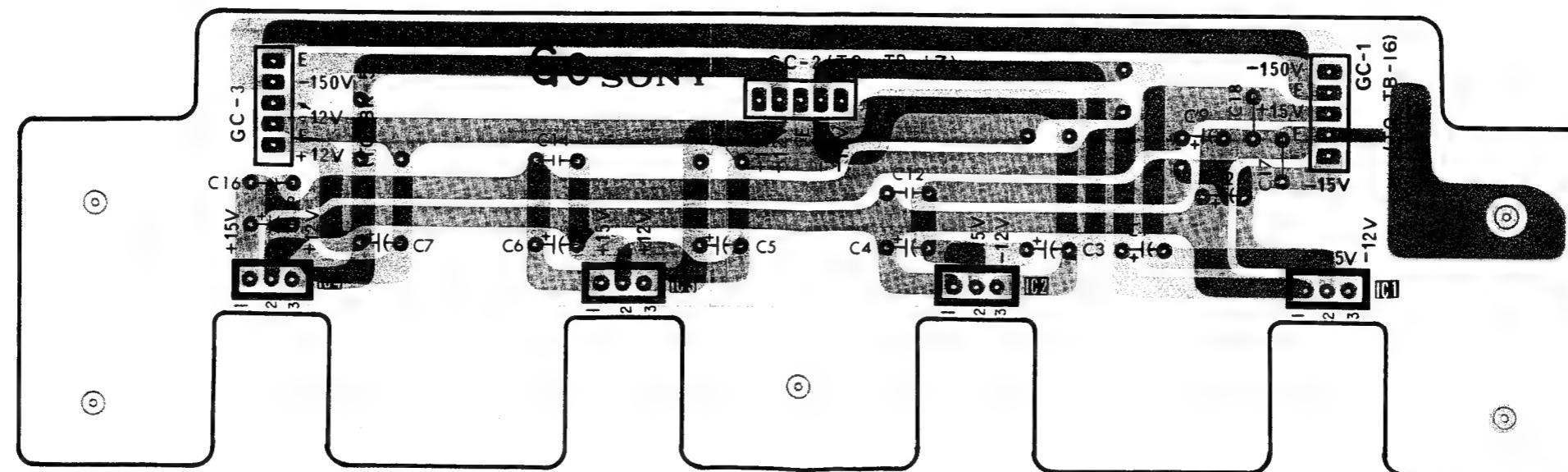
QB board (RGB/COMPONENT INPUT)



V board (REMOTE)

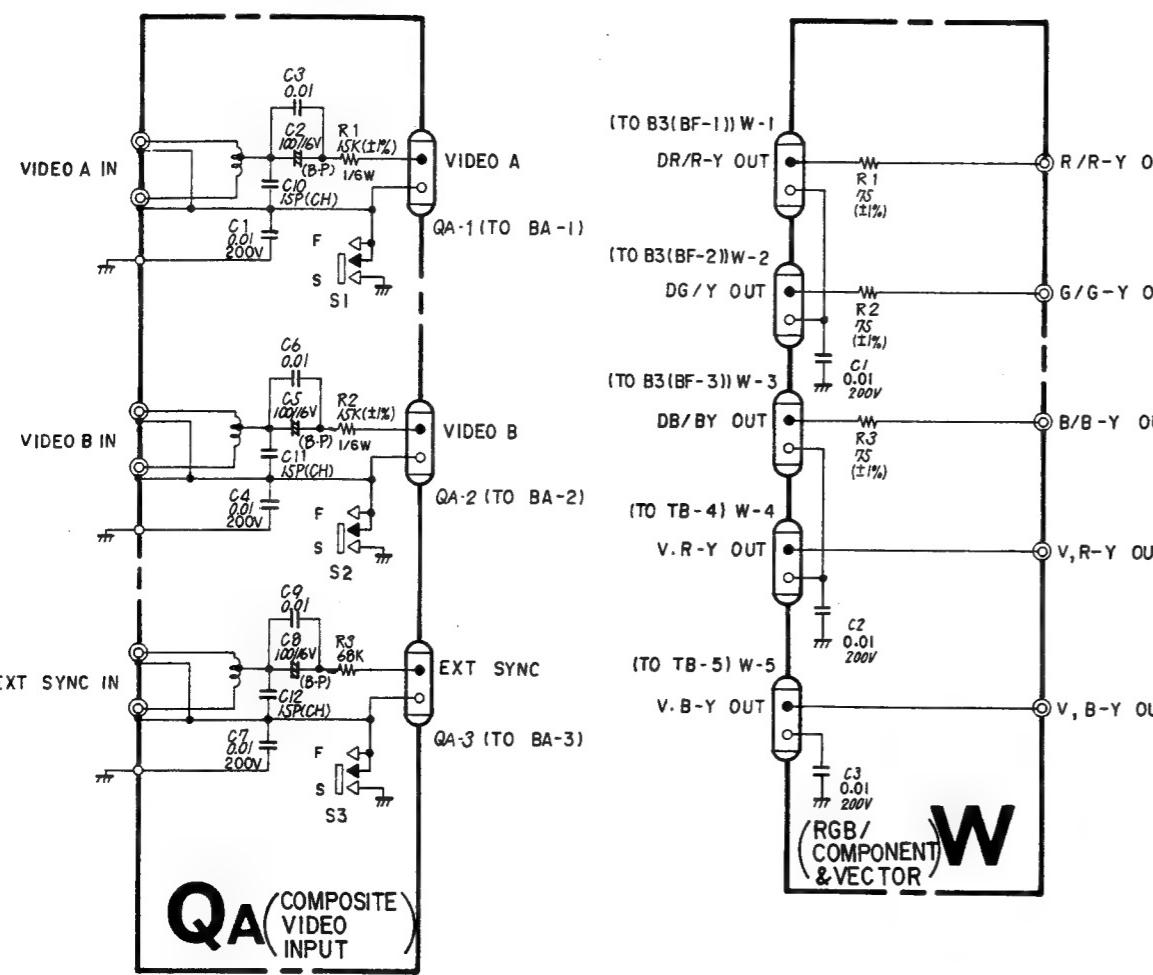


GC board (REG)



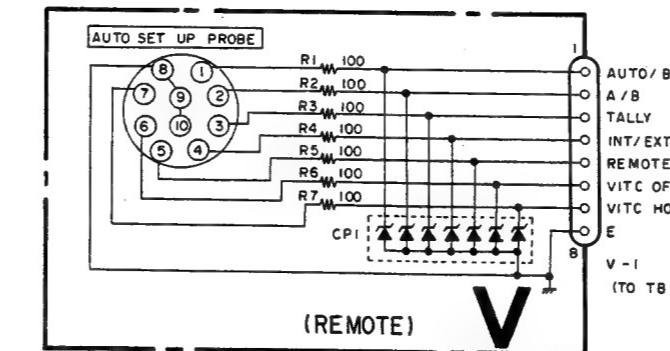
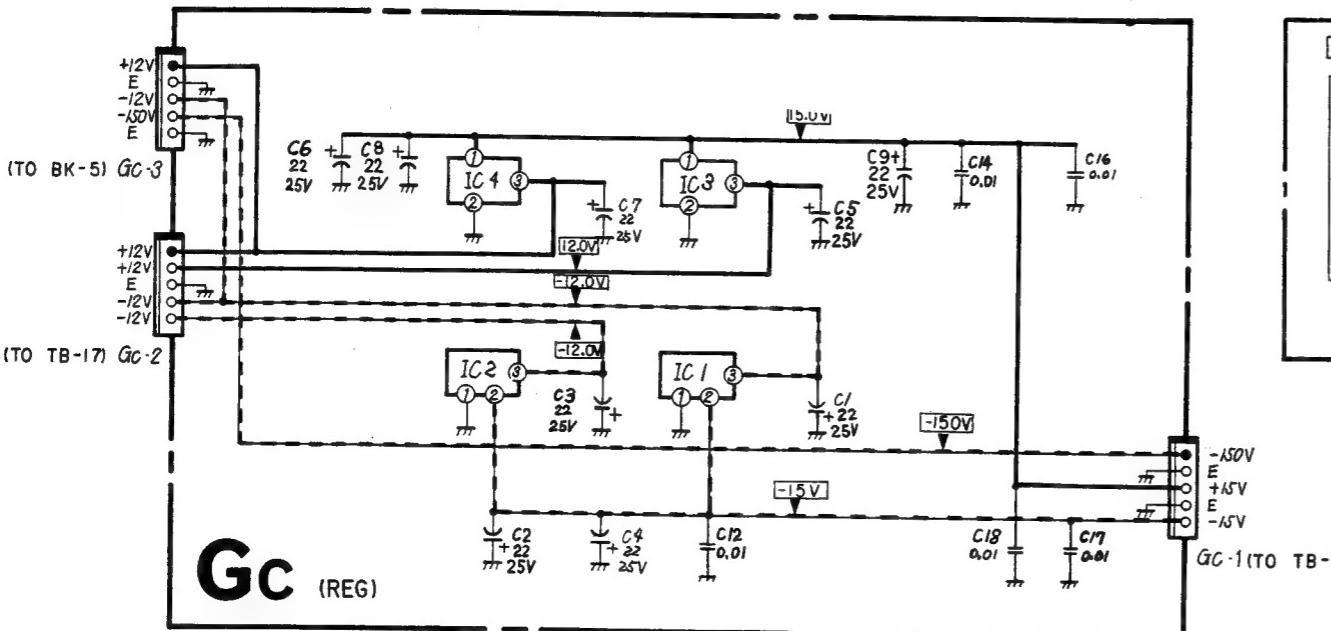
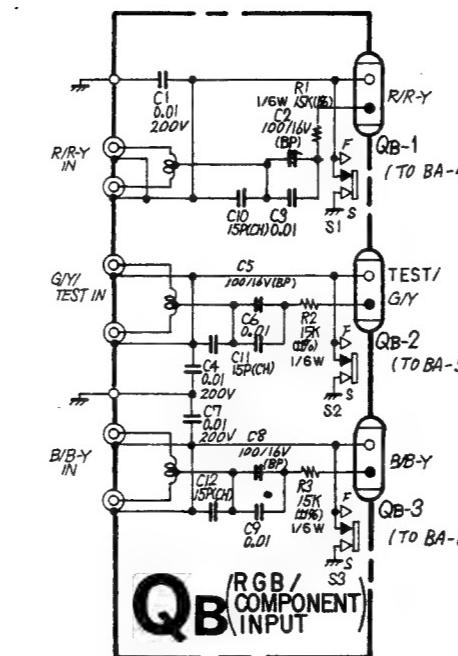
GC, QA, QB, V, W GC, QA, QB, V, W

GC board (REG) QA board (COMPOSITE VIDEO INPUT) QB board (RGB/COMPONENT INPUT)
V board (REMOTE) W board (RGB/COMPONENT & VECTOR)



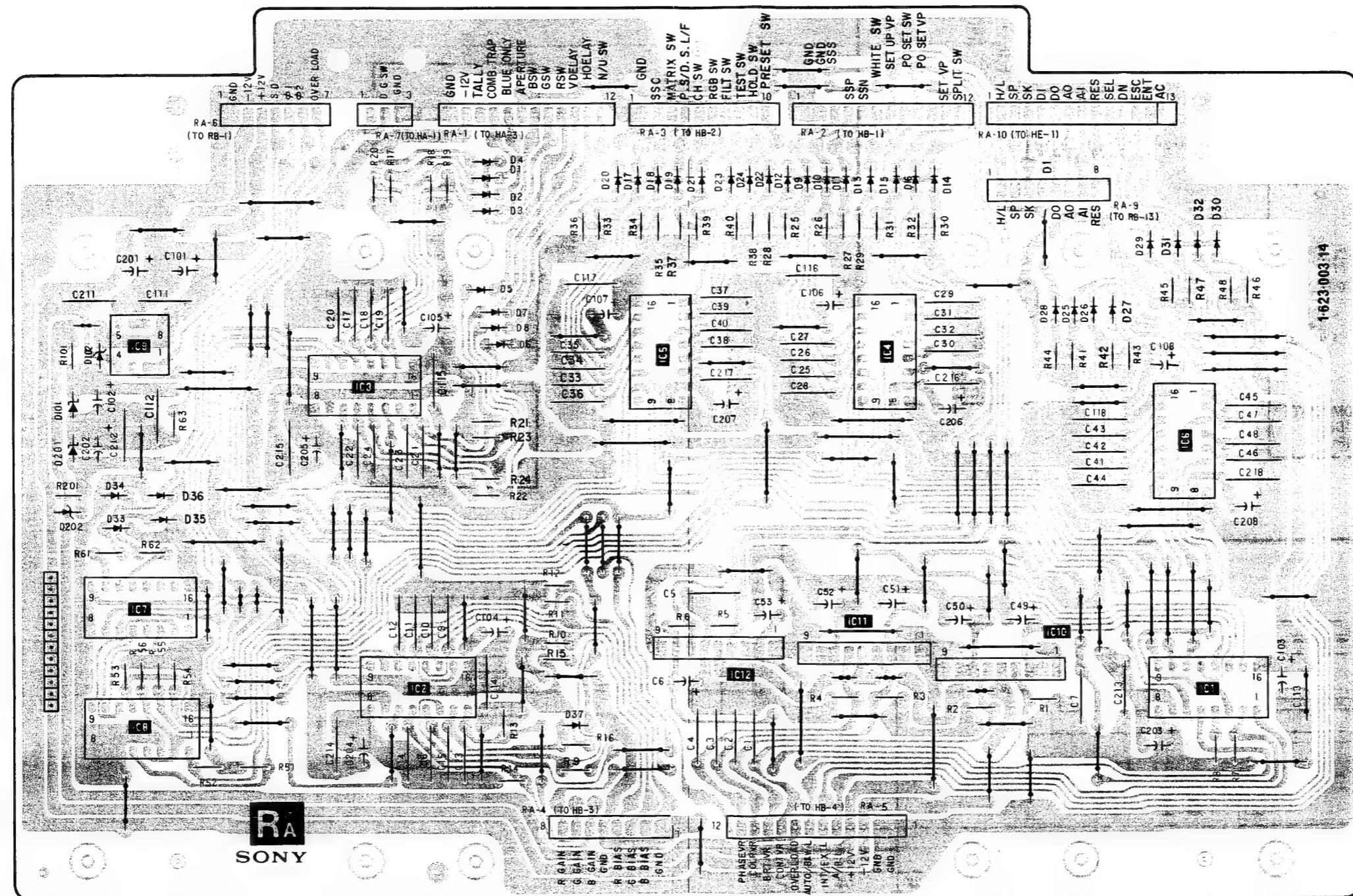
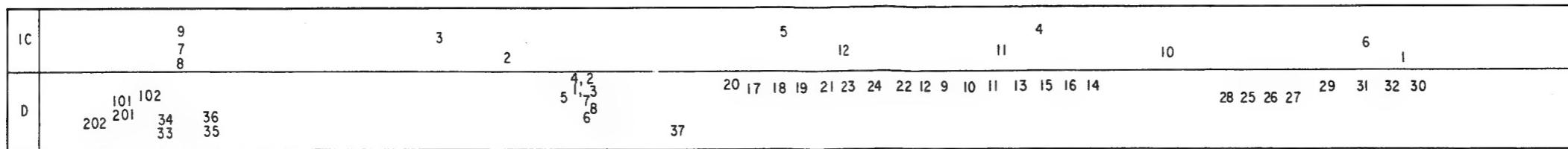
GC BOARD

IC1	UPC7972H	-12V REG
2	UPC7972H	-12V REG
3	UPC7812H	+12V REG
4	UPC7812H	+12V REG

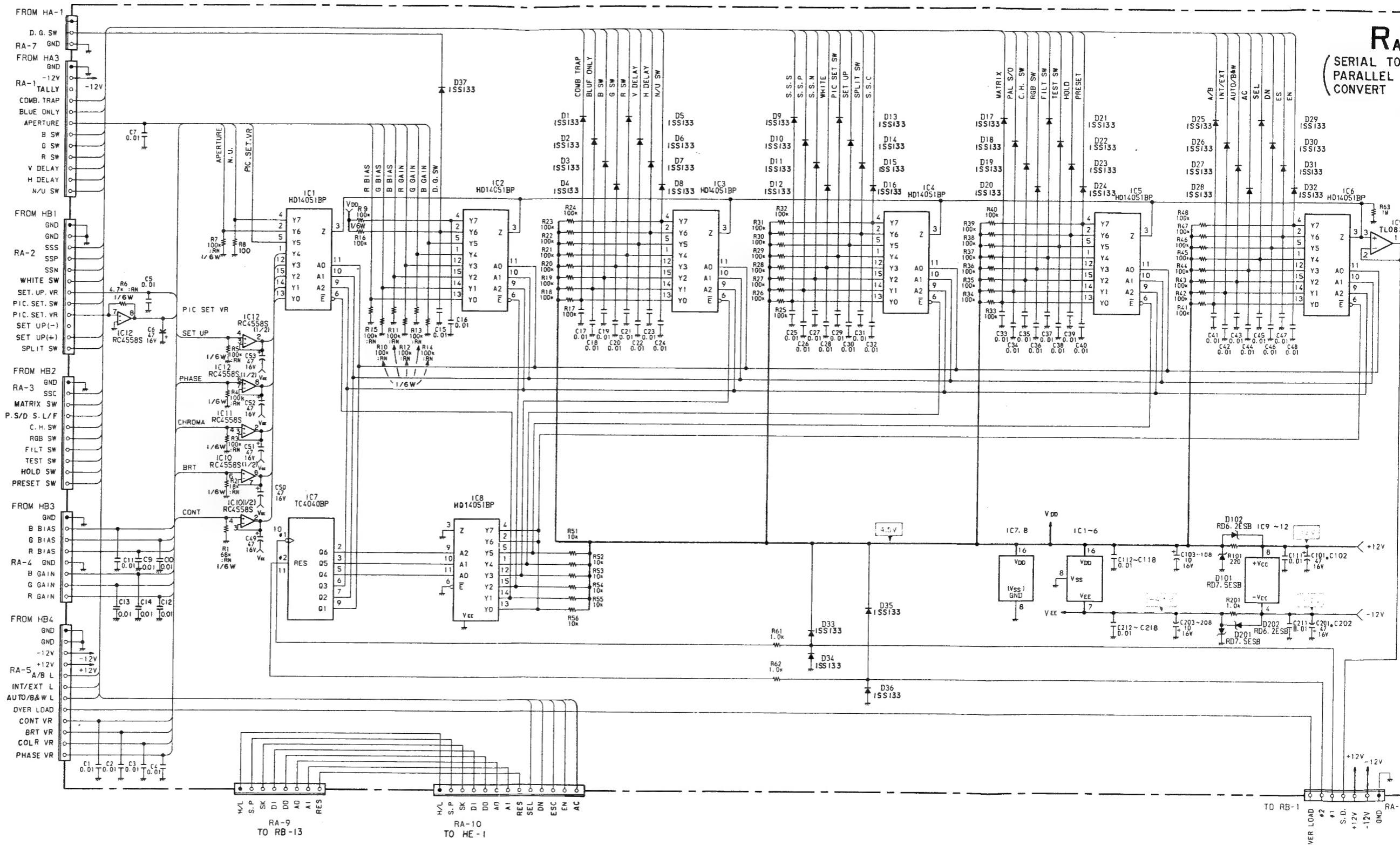


RA RA

RA board (SERIAL TO PARALLEL CONVERT)

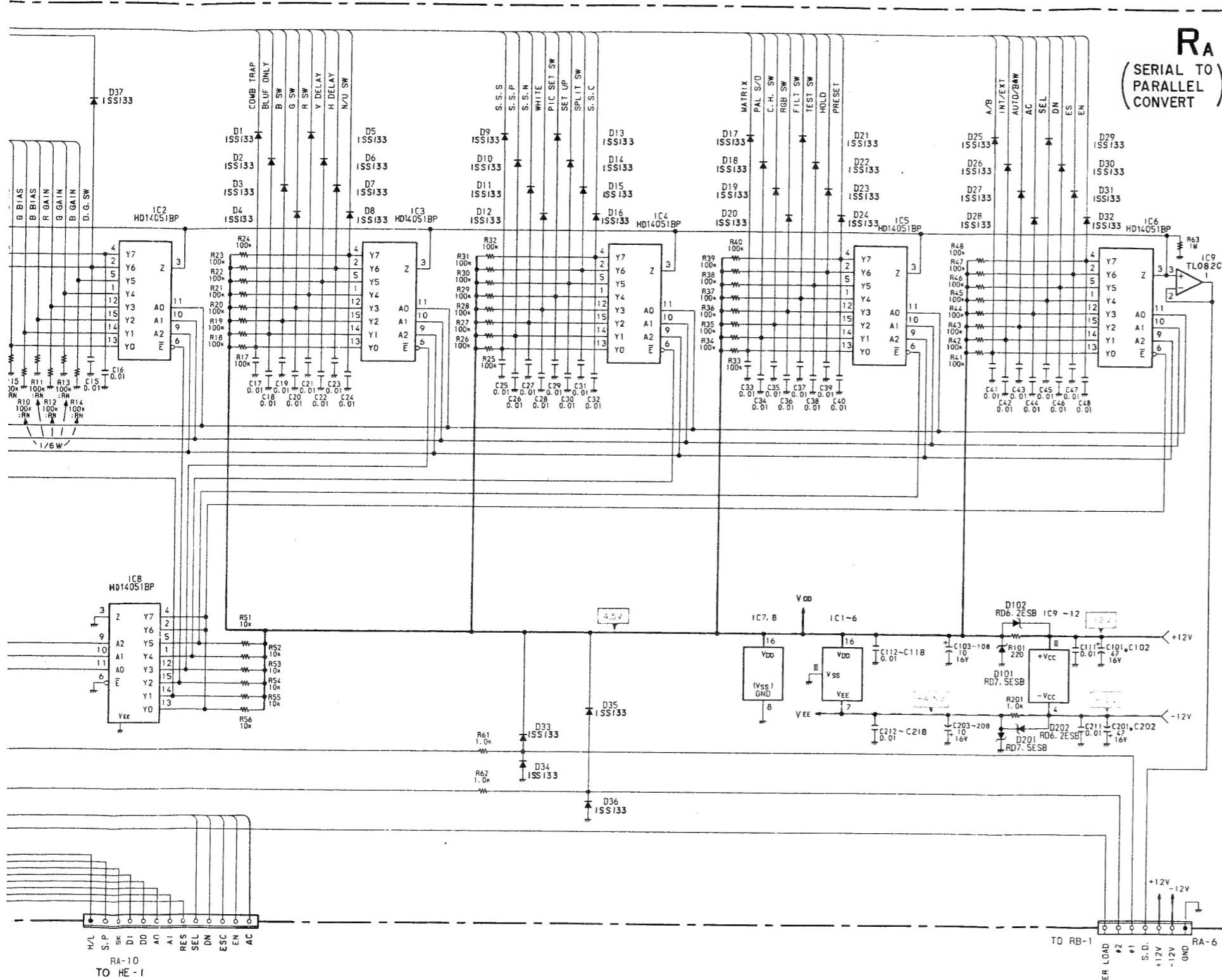


RA board (SERIAL TO PARALLEL CONVERT)



RA BOARD

D 1	ISS133	SWITCH
2	ISS133	SWITCH
3	ISS133	SWITCH
4	ISS133	SWITCH
5	ISS133	SWITCH
6	ISS133	SWITCH
7	ISS133	SWITCH
8	ISS133	SWITCH
9	ISS133	SWITCH
10	ISS133	SWITCH
11	ISS133	SWITCH
12	ISS133	SWITCH
13	ISS133	SWITCH
14	ISS133	SWITCH
15	ISS133	SWITCH
16	ISS133	SWITCH
17	ISS133	SWITCH
18	ISS133	SWITCH
19	ISS133	SWITCH
20	ISS133	SWITCH
D 21	ISS133	SWITCH
22	ISS133	SWITCH
23	ISS133	SWITCH
24	ISS133	SWITCH
25	ISS133	SWITCH
26	ISS133	SWITCH
27	ISS133	SWITCH
28	ISS133	SWITCH
29	ISS133	SWITCH
30	ISS133	SWITCH
31	ISS133	SWITCH
32	ISS133	SWITCH
33	ISS133	SWITCH
34	ISS133	PROTECTOR
35	ISS133	PROTECTOR
36	ISS133	PROTECTOR
37	ISS133	PROTECTOR
D 101	RD7.5ES-T1B	+4.5V REG
102	RD6.2ES-T1B	+4.5V REG
201	RD7.5ES-T1B	-4.5V REG
202	RD6.2ES-T1B	-4.5V REG
IC 1	HD14051BP	MUX
2	HD14051BP	MUX
3	HD14051BP	MUX
4	HD14051BP	MUX
5	HD14051BP	MUX
6	HD14051BP	MUX
7	TC4040BP	COUNTER
8	HD14051BP	DECODER
9	UPC4082C	BUFFER
10	RC4558S	SAMPLE HOLD
11	RC4558S	BUFFER
12	RC4558S	BUFFER



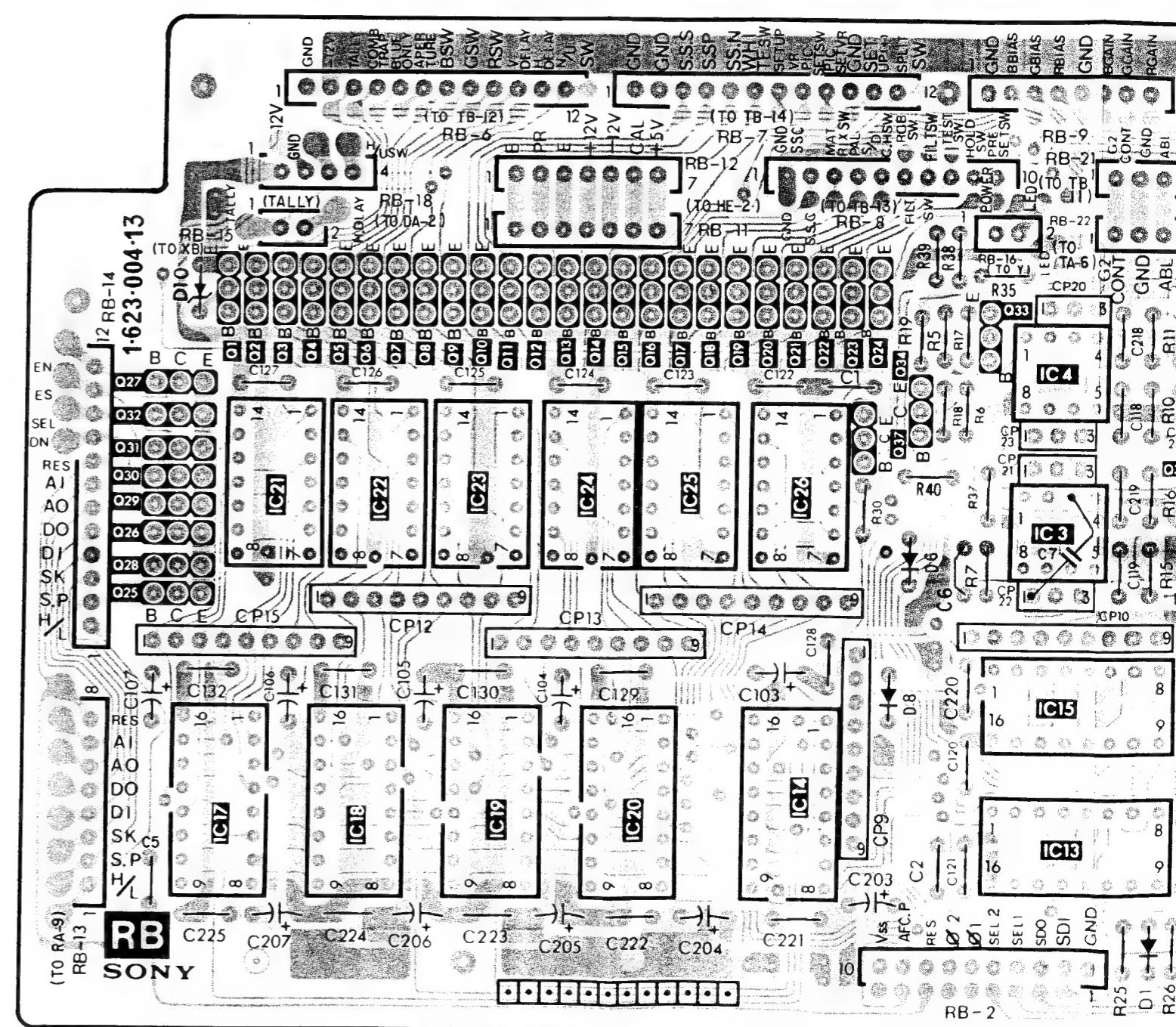
RB board (PARALLEL TO SERIAL CONVERT)

RB BOARD

D	T	1SS148	SWITCH
2		1SS148	SWITCH
3		1SS148	SWITCH
4		1SS148	SWITCH
5		1SS148	SWITCH
6		1SS148	SWITCH
7		1SS148	SWITCH
8		1SS148	SWITCH
10		RD13ES-T1B	
101		RD7.5ESB	+4.5V REG
201		RD7.5ESB	-4.5V REG
IC 1	TL082CP	DE-MULTIPLEXER	
2	TL082CP	DE-MULTIPLEXER	
3	TL082CP	SAMPLE HOLD	
4	TL082CP	SAMPLE HOLD	
5	TL082CP	SAMPLE HOLD	
6	TL082CP	SAMPLE HOLD	
7	TL082CP	SAMPLE HOLD	
8	TL082CP	SAMPLE HOLD	
9	TL082CP	SAMPLE HOLD	
10	TL082CP	SAMPLE HOLD	
11	TC4053BP	DE-MULTIPLEXER	
13	HD14051BP	COUNTER	
14	HD14051BP	DECODER	
15	HD14051BP	DE-MULTIPLEXER	
IC16	HD14051BP	DE-MULTIPLEXER	
17	HD14051BP	DE-MULTIPLEXER	
18	HD14051BP	DE-MULTIPLEXER	
19	HD14051BP	DE-MULTIPLEXER	
20	HD14051BP	DE-MULTIPLEXER	
21	uPD4069UBC	SAMPLE HOLD	
22	uPD4069UBC	SAMPLE HOLD	
23	uPD4069UBC	SAMPLE HOLD	
24	uPD4069UBC	SAMPLE HOLD	
25	uPD4069UBC	SAMPLE HOLD	
26	uPD4069UBC	SAMPLE HOLD	
Q 1	DTC144ES	OUTPUT BUFFER	
2	DTC144ES	OUTPUT BUFFER	
3	DTC144ES	OUTPUT BUFFER	
4	DTC144ES	OUTPUT BUFFER	
5	DTC144ES	OUTPUT BUFFER	

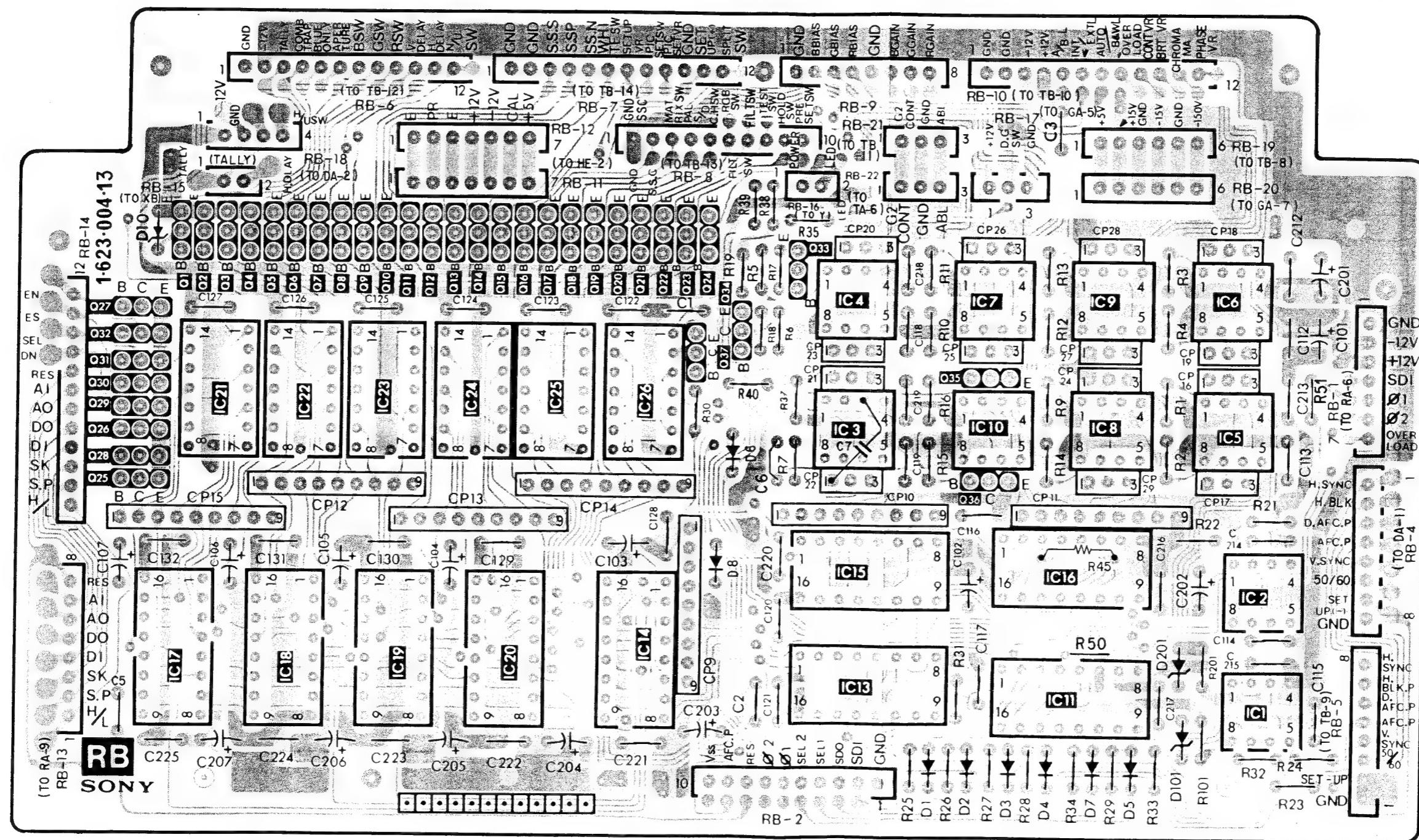
Q 6	DTC144ES	OUTPUT BUFFER
7	DTC144ES	OUTPUT BUFFER
8	DTC144ES	OUTPUT BUFFER
9	DTC144ES	OUTPUT BUFFER
10	DTC144ES	OUTPUT BUFFER
11	DTC144ES	OUTPUT BUFFER
12	DTC144ES	OUTPUT BUFFER
13	DTC144ES	OUTPUT BUFFER
14	DTC144ES	OUTPUT BUFFER
15	DTC144ES	OUTPUT BUFFER
16	DTC144ES	OUTPUT BUFFER
17	DTC144ES	OUTPUT BUFFER
18	DTC144ES	OUTPUT BUFFER
19	DTC144ES	OUTPUT BUFFER
20	DTC144ES	OUTPUT BUFFER
21	DTC144ES	OUTPUT BUFFER
22	DTC144ES	OUTPUT BUFFER
Q 23	DTC144ES	OUTPUT BUFFER
24	DTC144ES	OUTPUT BUFFER
25	DTC144ES	OUTPUT BUFFER
26	DTC144ES	OUTPUT BUFFER
27	DTC144ES	OUTPUT BUFFER
28	DTC144ES	OUTPUT BUFFER
29	DTC144ES	OUTPUT BUFFER
30	DTC144ES	OUTPUT BUFFER
31	DTC144ES	OUTPUT BUFFER
32	DTC144ES	OUTPUT BUFFER
33	2SA1175	OUTPUT BUFFER
34	2SA1175	OUTPUT BUFFER
35	DTC144ES	OUTPUT BUFFER
36	DTC144ES	OUTPUT BUFFER
37	2SA1175	OUTPUT BUFFER

I C	17	21	22	23	24	25	26	4
Q	27,29 32,26 31,28 30,25	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24 37	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24 34	33				3 15 13
D	10							6 8 -



RB RB

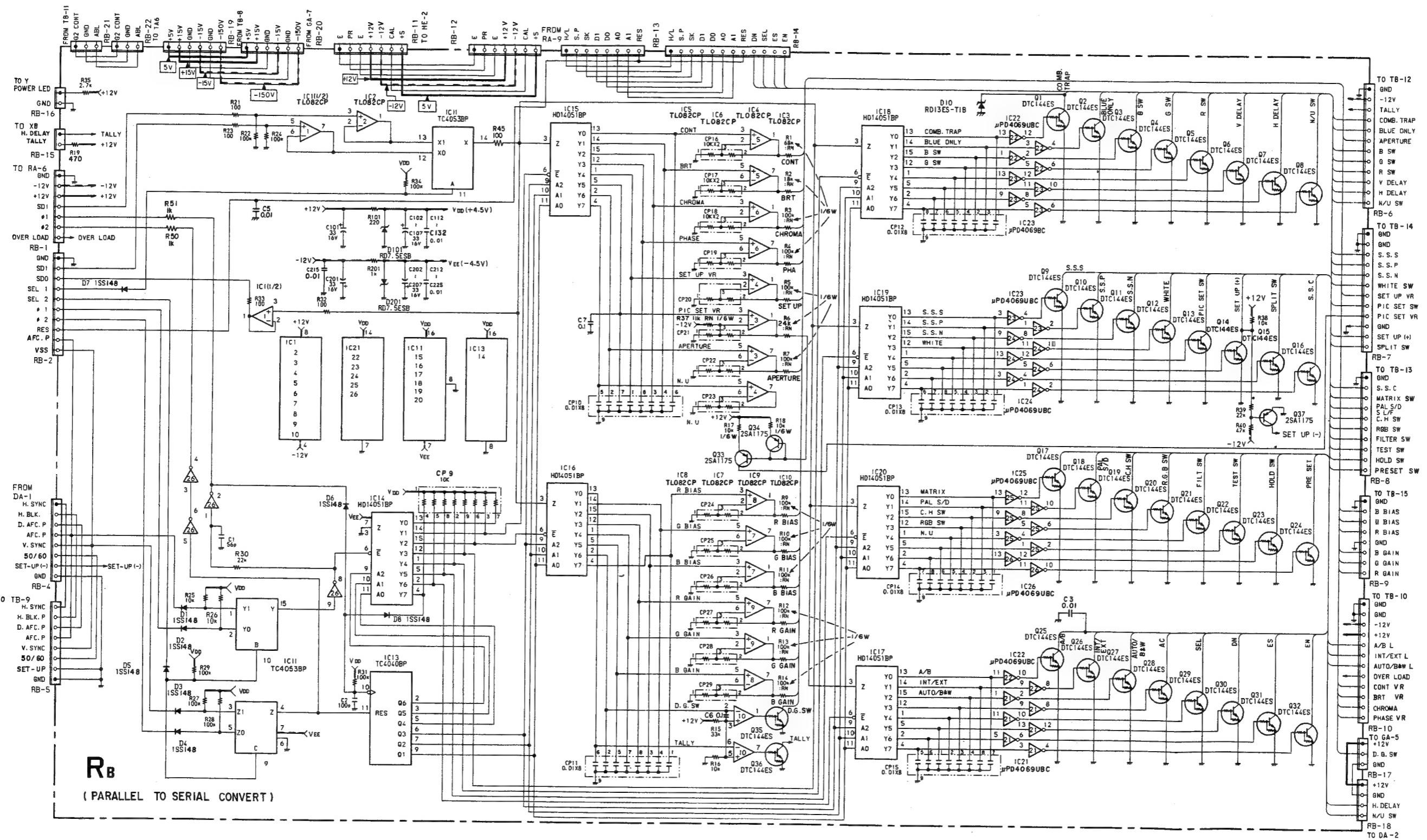
I C		21	22	23	24	25	26		4	3	15	7	10	9	8	6	5	2																									
Q		17	18	19	20	14		3	13	15	13	11	16	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24															
D		27, 29	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24	37	34	33		3	35		36																																
		32, 26																																									
		31, 28																																									
		30, 25																																									
		10							6																																		
									8																																		
										1	2	3	4	7	5	202																											



Conductor side pattern

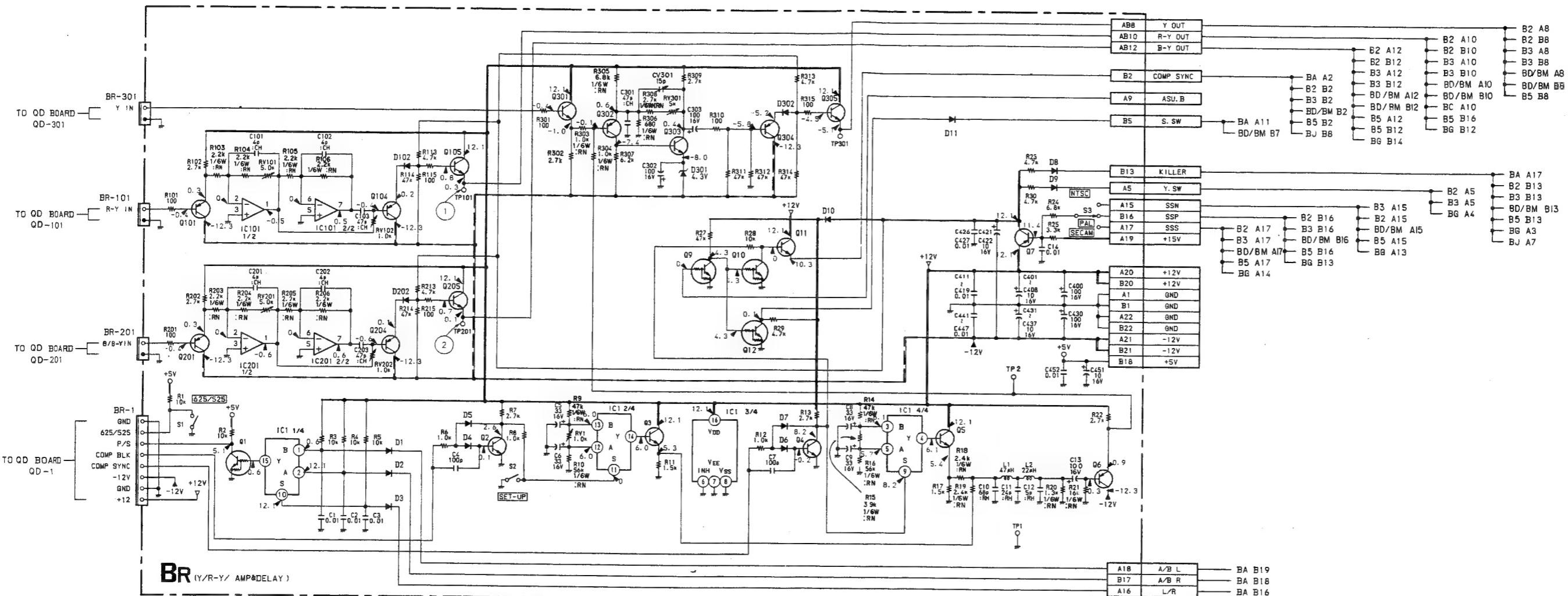
Component side pattern

RB board (PARALLEL TO SERIAL CONVERT)



BR BR

BR board (R-Y AMP & DELAY, Y AMP, R-Y BUFFER) (BVM-2010PD/PMD only)

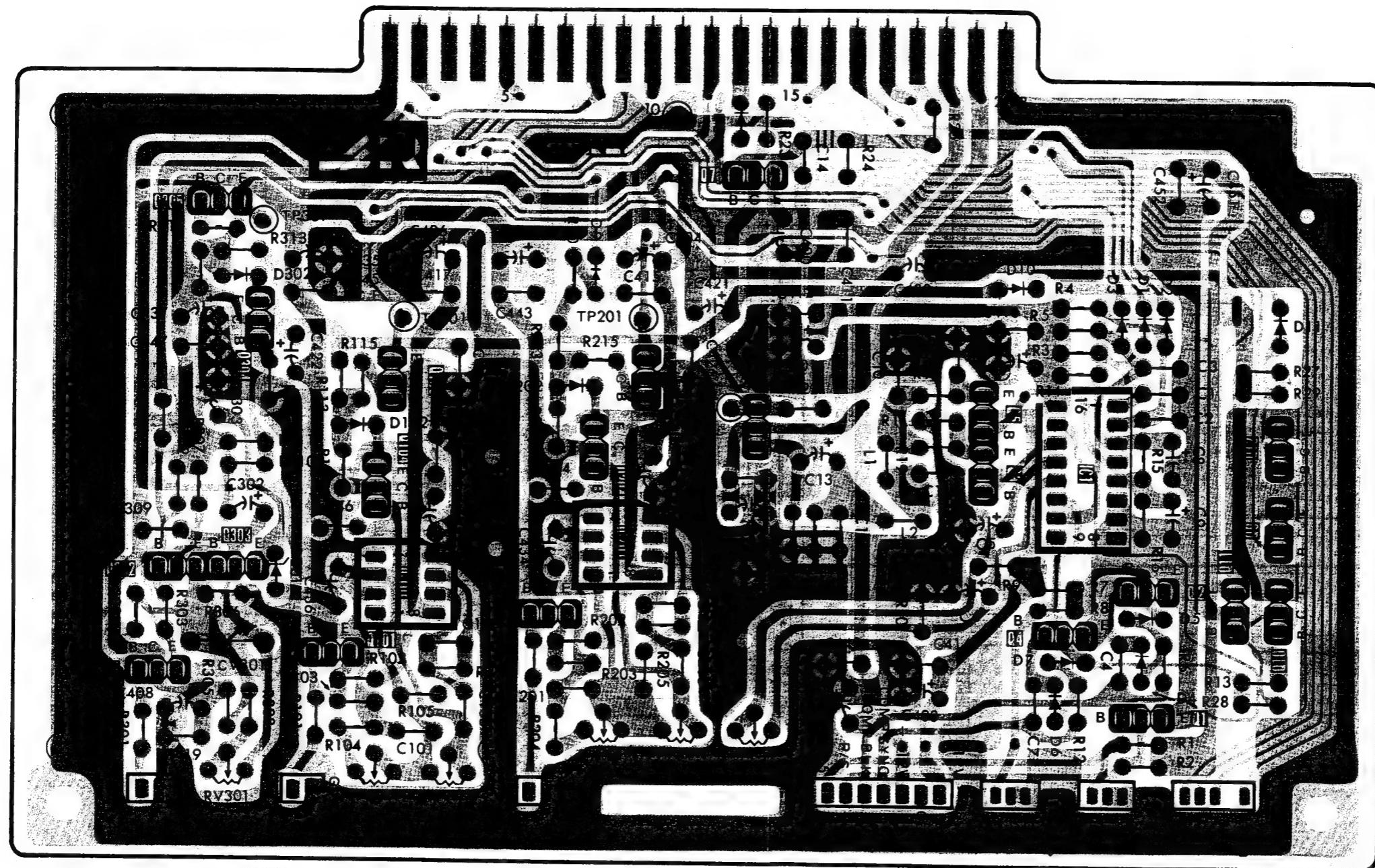


IC	1	TC4053BPHB	MULTIPLEXER	D 102	ISS119	R-Y SW	Q 12	DTC144ES	SYNC INHIBIT
101	CX20197	OP-AMPLIFIER		202	ISS119	B-Y SW	101	2SA1175	R-Y BUFFER
201	CX20197	OP-AMPLIFIER		301	RD4.3ES-B	OP. AMP. BIAS	104	2SA1175	R-Y BUFFER
				302	ISS119	Y SW	105	2SC3068	R-Y BUFFER
D 1	ISS119	A/B LOCAL IN					201	2SA1175	B-Y BUFFER
2	ISS119	A/B REMOTE IN	Q 1	DTC144ES	P/S SELECTOR	204	2SA1175	B-Y BUFFER	
3	ISS119	LOC/REM IN	2	2SC2785	BLANKING BUF.	205	2SC3068	B-Y BUFFER	
4	ISS119	BLANKING PRO.	3	2SC2785	BLANKING BUF.	301	2SC2785	Y BUFFER	
5	ISS119	BLANKING PRO.	4	2SC2785	COMP SYNC BUF	302	2SA1175	OP. AMPLIFIER	
6	ISS119	COMP SYNC PRO.	5	2SC2785	COMP SYNC PRO.	303	2SC2785	OP. AMPLIFIER	
7	ISS119	COMP SYNC PRO.	6	2SA1175	COMP SYNC BUF	304	2SA1175	Y BUFFER	
8	ISS119	KILLER OUT	7	2SA1175	BR ENABLE	305	2SC3068	Y BUFFER	
9	ISS119	Y SW OUT	9	DTC144ES	ASU.ENABLE				
10	ISS119	BR ENABLE	10	DTC144ES	SYNC.ENABLE				
11	ISS119	S. INHIBIT OUT	11	2SC3068	COMP SYNC BUF				

BR BR

BR board (R-Y AMP & DELAY, Y AMP, R-Y BUFFER) (BVM-2010PD/PMD only)

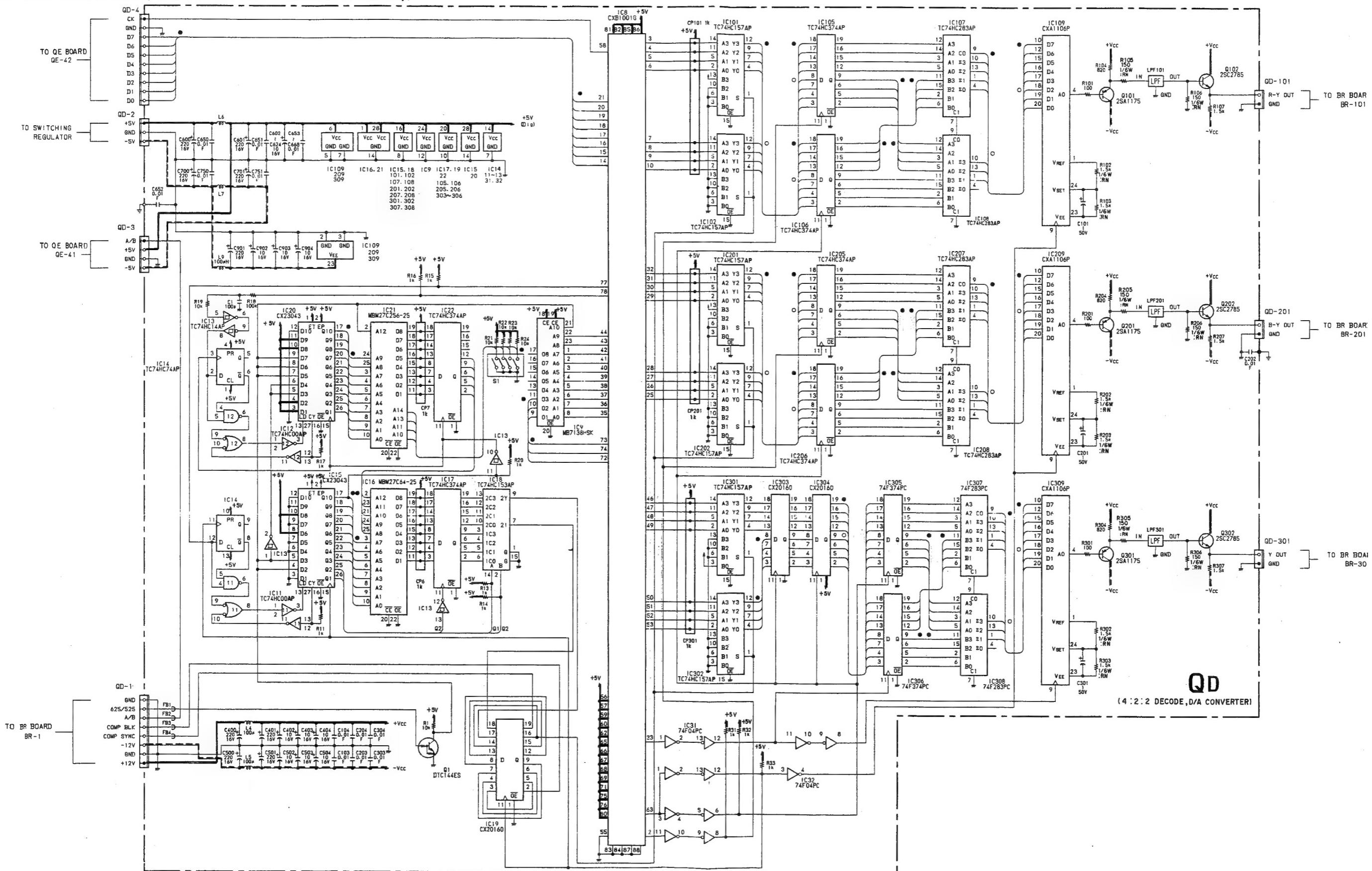
IC	201										I	IC	
Q	305 302 303 301	304 101 104		201 204 205	7 6		5 3	4	2	I	II	12 9 10	Q
D	302 301	102		202 9	8		10 7 6		3,1,2 4	II		D	
ADJ	CV301 RV301	RV101 RV102		RV201 RV202	RV1							ADJ	
TP	301	101		201	2	I						TP	



- Conductor side pattern
- Component side pattern

QD QD

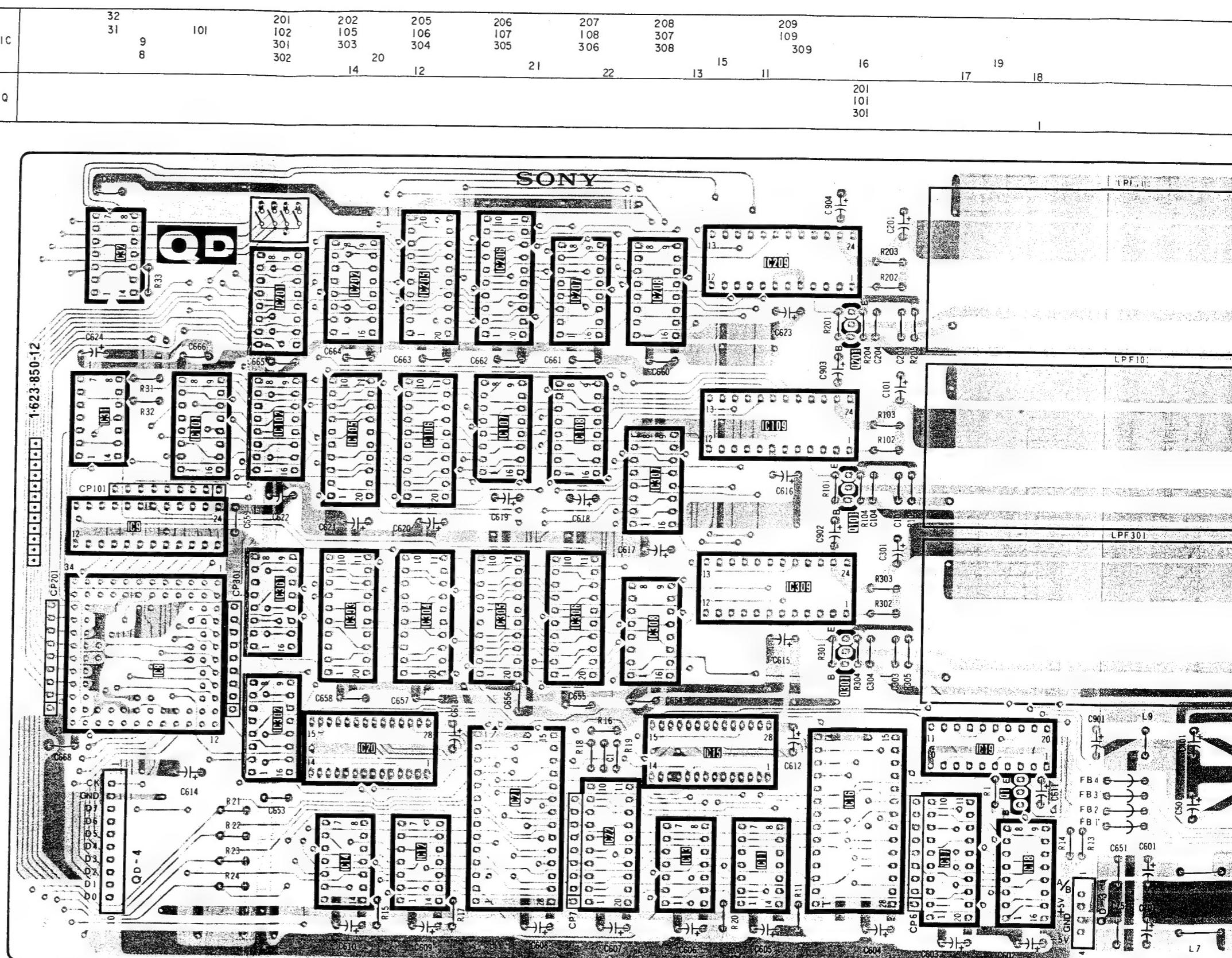
QD board (4:2:2 DECODE, D/A CONVERTER) (BVM-2010PD/PMD only)



QD QD

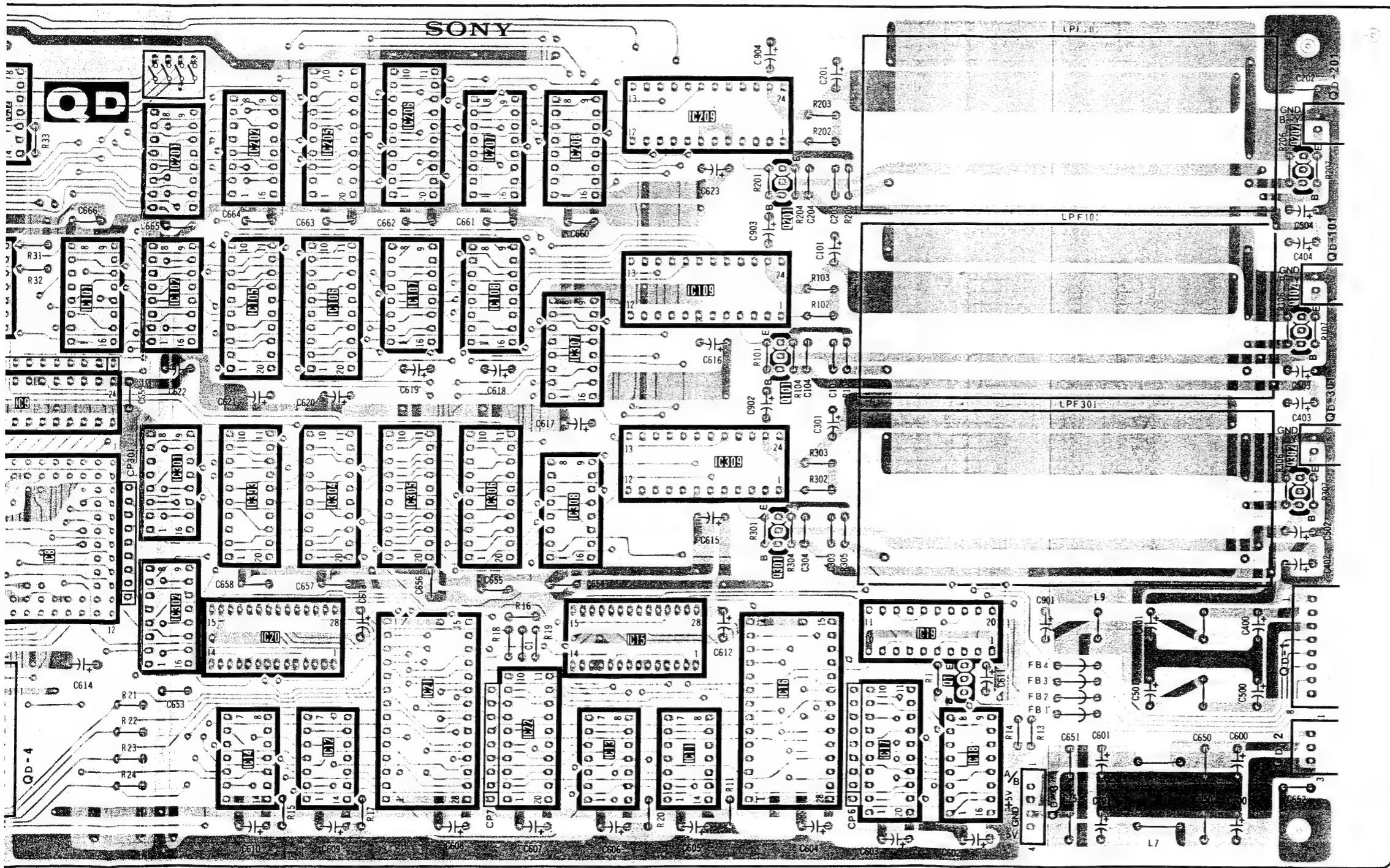
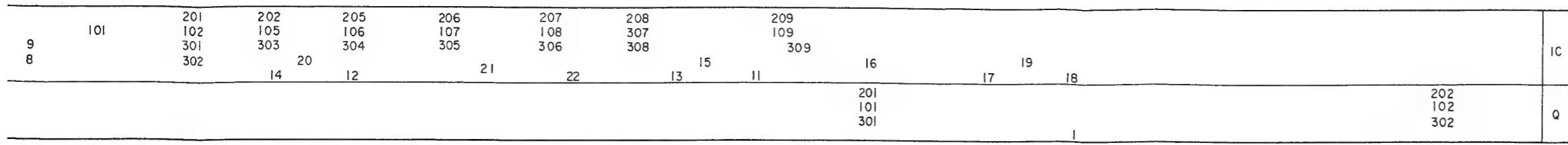
QD board (4:2:2 DECODE, D/A CONVERTER) (BVM-2010PD/PMD only)

IC 8	CXB1001G	
9	MB7138HSK	
11	TC74HC00 AP	
12	TC74HC00 AP	
13	TC74HC14 AP	
14	TC74HC74 AP	
15	CX2043	
16	MBM27C64-25	
17	TC74HC374AP	
18	TC74HC153AP	
19	CX20160	
20	CX2043	
21	MBM27C256-25	
IC 22	TC74HC374AP	
31	74F04PC	
32	74F04PC	
101	TC74HC157AP	
102	TC74HC157AP	
105	TC74HC374AP	
106	TC74HC374AP	
107	TC74HC283AP	
108	TC74HC283AP	
109	CXA1106P	
IC 201	TC74HC157AP	
202	TC74HC157AP	
205	TC74HC374AP	
206	TC74HC374AP	
207	TC74HC283AP	
208	TC74HC283AP	
209	CXA1106P	
301	TC74HC157AP	
302	TC74HC157AP	
303	CX20160	
IC 304	CX20160	
305	74F374PC	
306	74F374PC	
307	74F283PC	
308	74F283PC	
309	CXA1106P	
Q 1	DTC144ES	
101	2SC1175-F	
102	2SC2785-F	
Q 201	2SC1175-F	
202	2SC2785-F	
301	2SC1175-F	
302	2SC2785-F	



QD QD

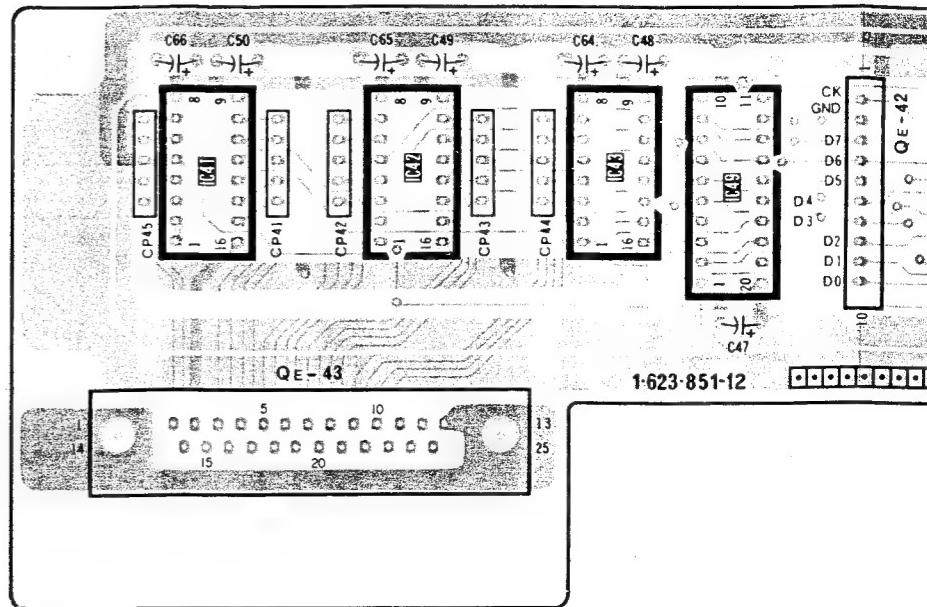
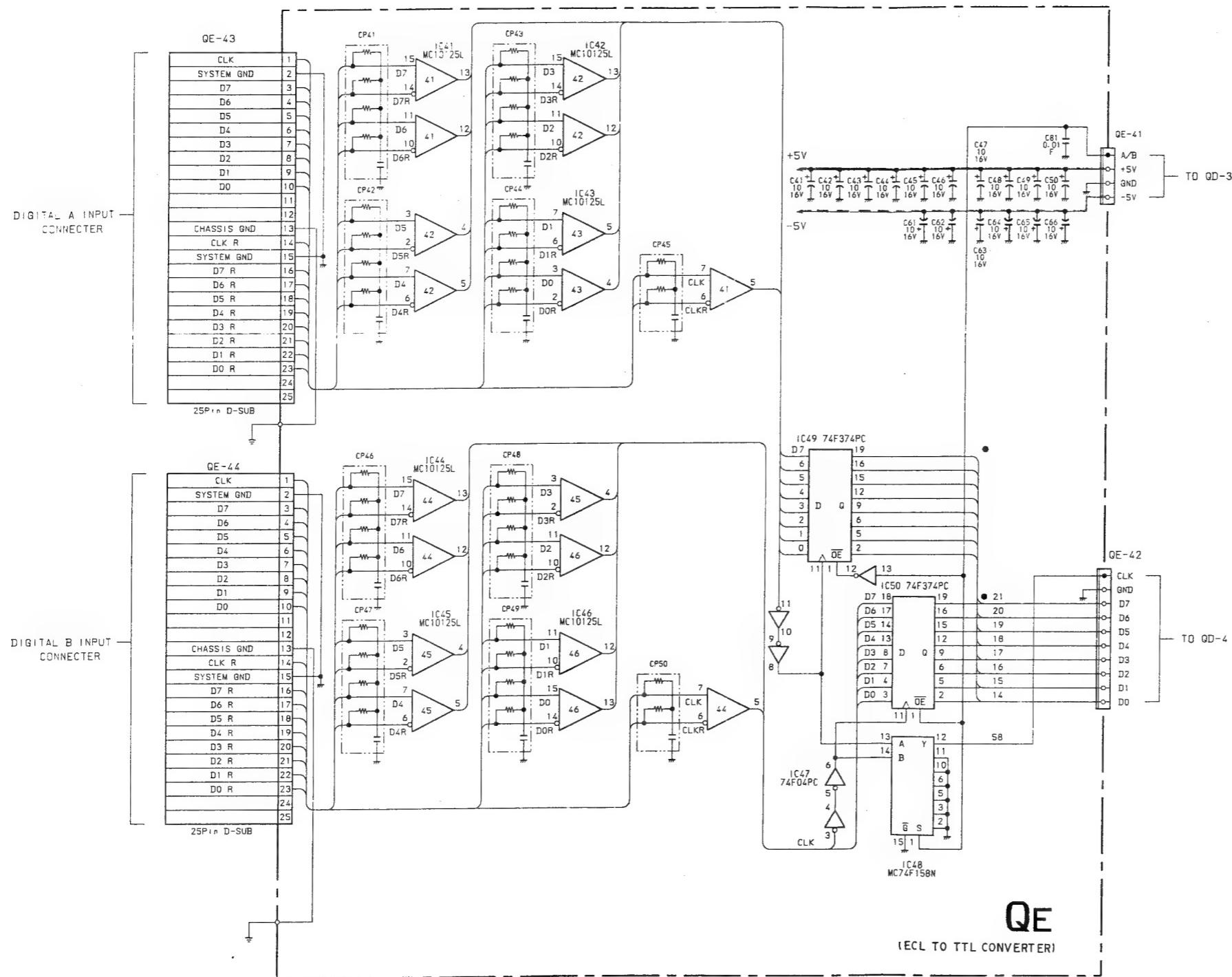
QE



- : Conductor side pattern
 - : Component side pattern

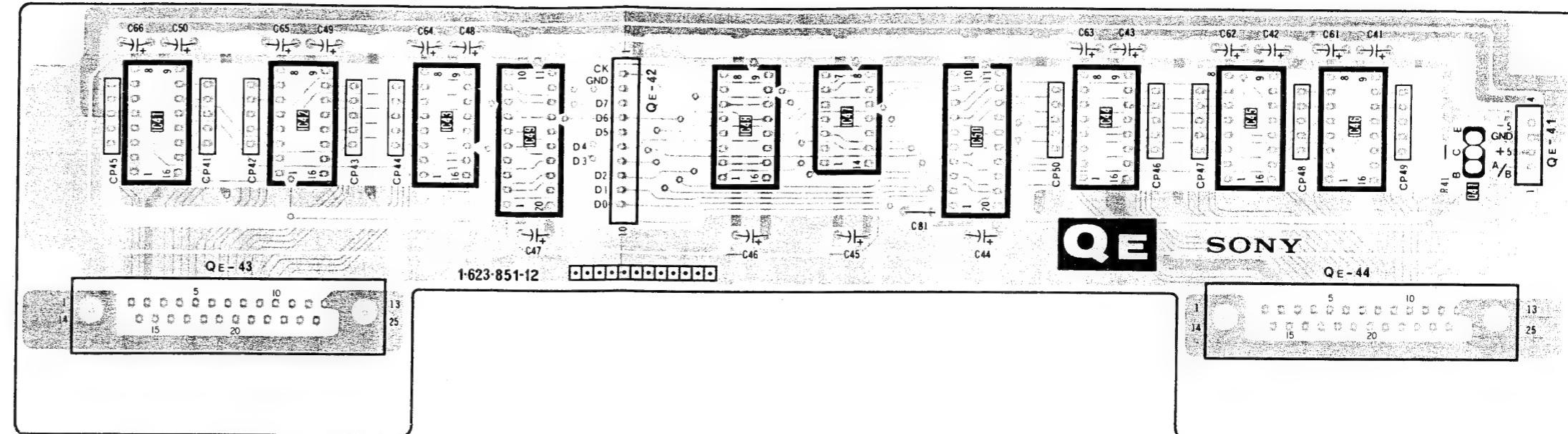
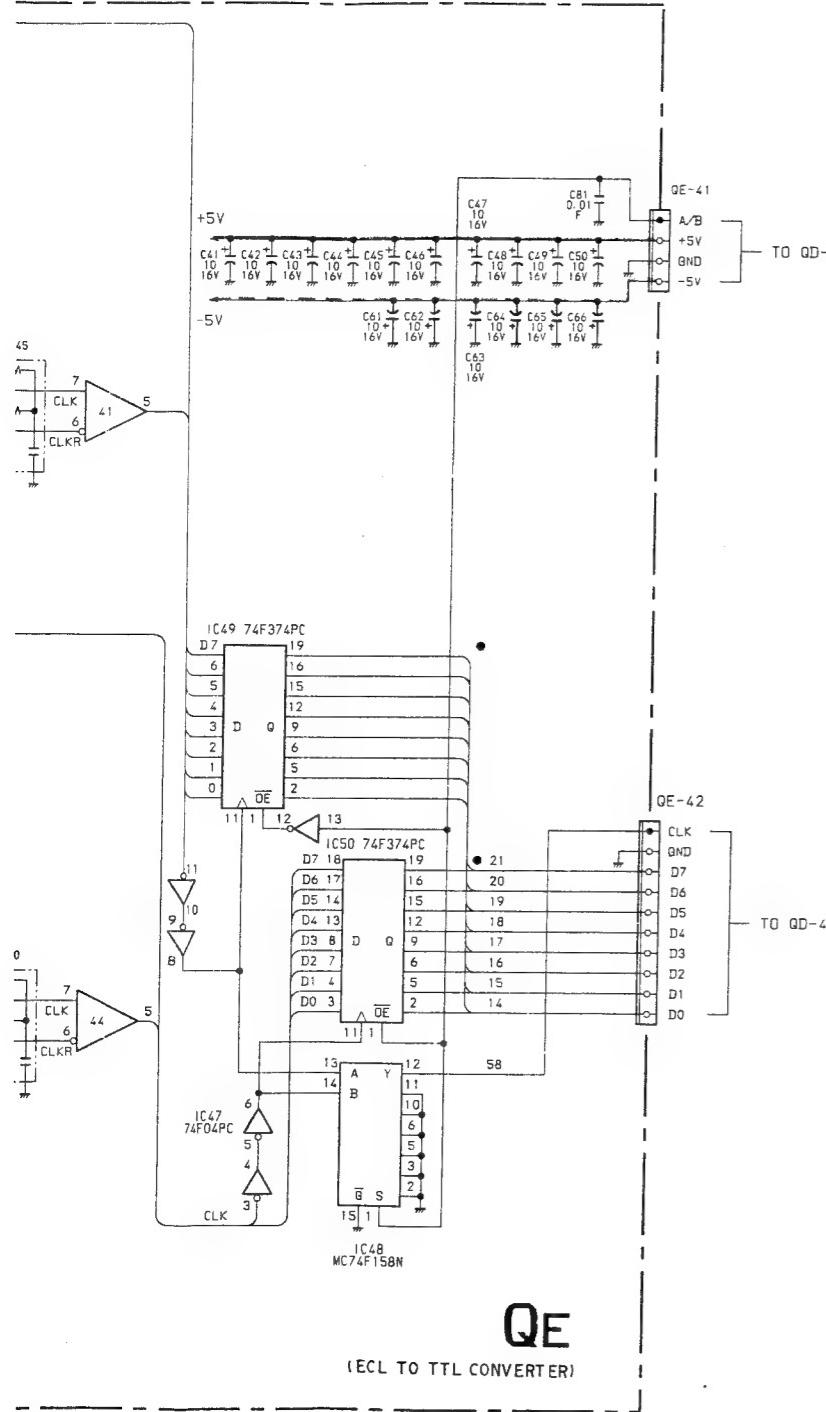
QE board (ECL TO TTL CONVERTER) (BVM-2010PD/PMD only)

5. DIAGRAMS



QE	41	MC10125L	
	42	MC10125L	
	43	MC10125L	
	44	MC10125L	
	45	MC10125L	
	46	MC10125L	
	47	74F04PC	
	48	MC74F158N	
	49	74F374PC	
	50	74F374PC	

QE QE

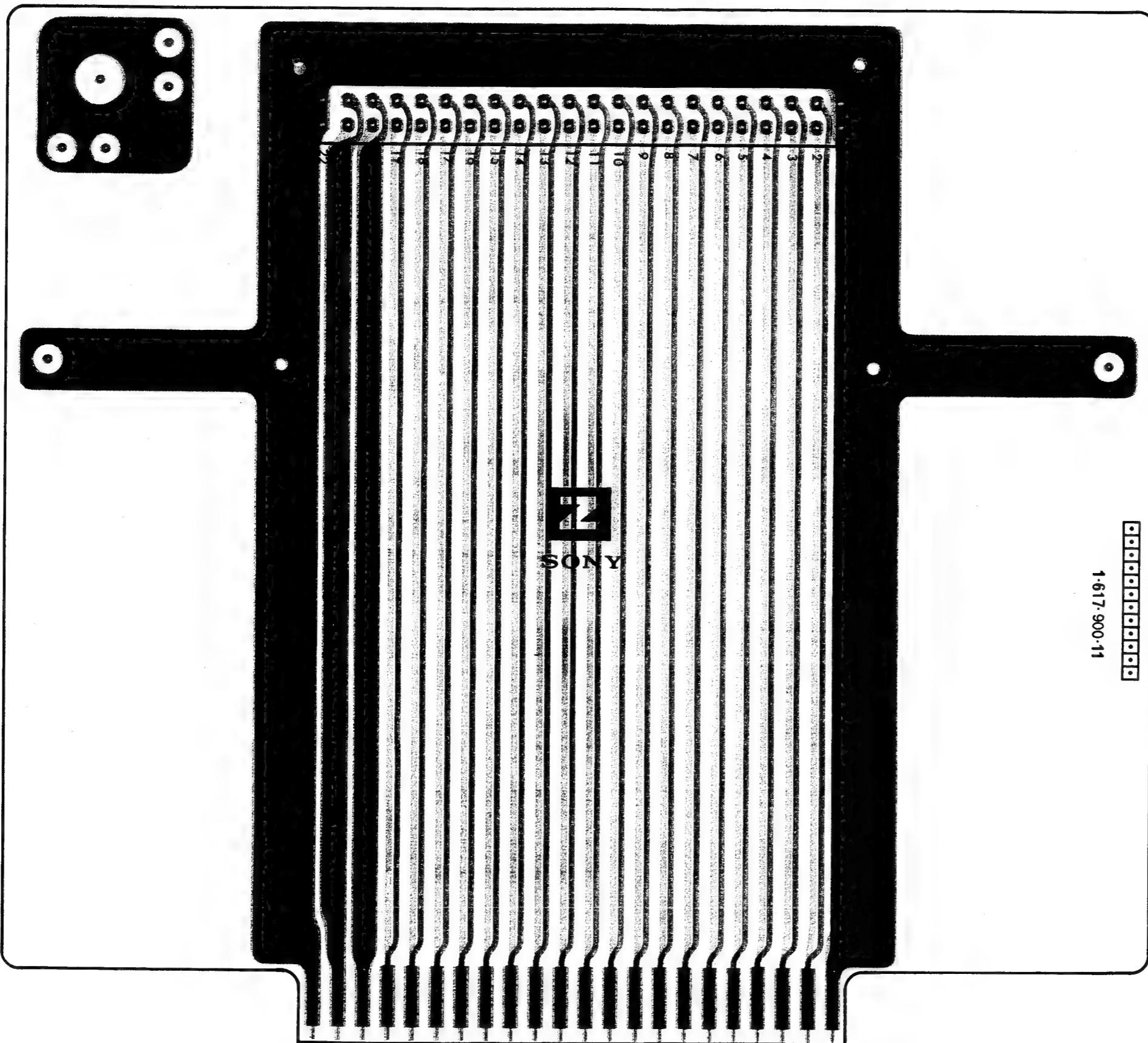


- : Conductor side pattern
- : Component side pattern

QE	IC	41	MC10125L	
		42	MC10125L	
		43	MC10125L	
		44	MC10125L	
		45	MC10125L	
		46	MC10125L	
		47	74F04PC	
		48	MC74F158N	
		49	74F374PC	
		50	74F374PC	

Z Z

Z board (EXTENSION BOARD)

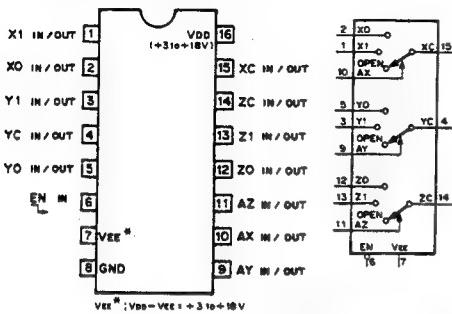


5-119

5-120

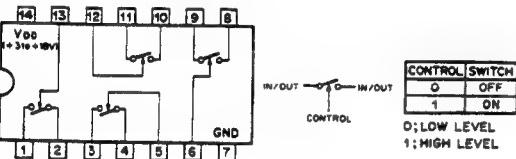
- Conductor side pattern
- Component side pattern

HD14053BP (HITACHI)
MC14053BCP (MOTOROLA)
TC4053BPHB (TOSHIBA)
uPD4053BC (NEC)
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —

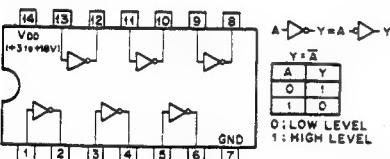


CONT.	INPUTS	ON
	EN A (X,Y,Z)	CHANNEL
0; LOW LEVEL	0 0	0
1; HIGH LEVEL	0 1	1
X; DONT CARE	1 X	OPEN

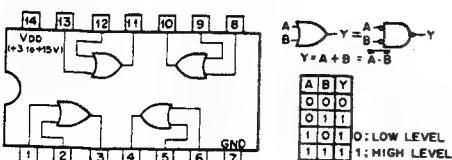
HD14066BP (HITACHI)
M884066B (FUJITSU)
uPD4066C (NEC)
C-MOS BILATERAL ANALOG SWITCH
— TOP VIEW —



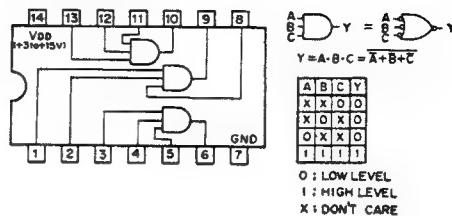
HD14069UBP (HITACHI)
MC14069BCP (MOTOROLA)
TC4069UBP (TOSHIBA)
uPD4069UBC (NEC)
C-MOS INVERTER
— TOP VIEW —



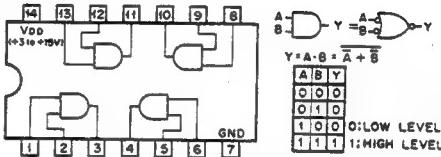
HD14071BP (HITACHI)
MC14071BCP (MOTOROLA)
TC4071BP (TOSHIBA)
uPD4071BC (NEC)
C-MOS 2-INPUT OR GATE
— TOP VIEW —



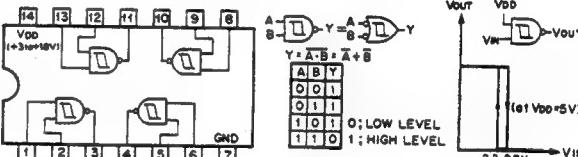
HD14073BP (HITACHI)
MC14073BCP (MOTOROLA)
TC4073BP (TOSHIBA)
uPD4073BC (NEC)
C-MOS 3-INPUT POSITIVE AND GATE
— TOP VIEW —



HD14081BP (HITACHI)
MC14081BCP (MOTOROLA)
TC4081BP (TOSHIBA)
uPD4081BC (NEC)
C-MOS 2-INPUT AND GATE
— TOP VIEW —

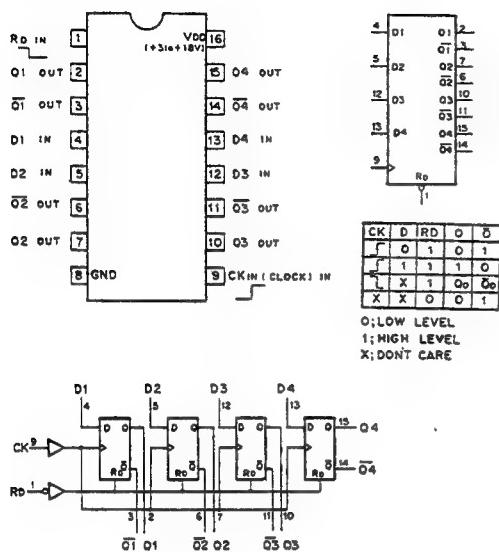


HD14093BP (HITACHI)
uPD4093BC (NEC)
TC4093BP (TOSHIBA)
C-MOS 2-INPUT NAND SCHMITT TRIGGER
— TOP VIEW —

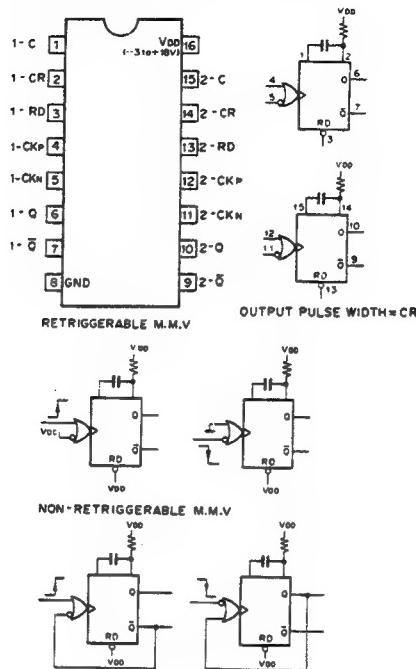


5. DIAGRAMS

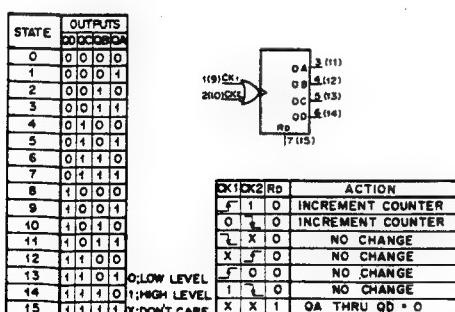
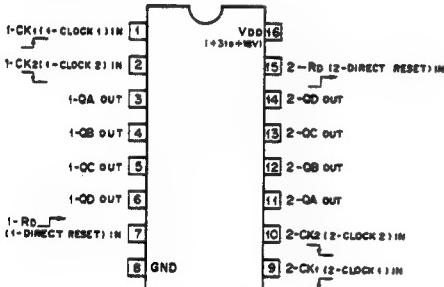
HD14175BP (HITACHI)
MC14175BCP (MOTOROLA)
TC40175BP (TOSHIBA)
μPD4175BC (NEC)
C-MOS DECADE COUNTER/DIVIDER
— TOP VIEW —



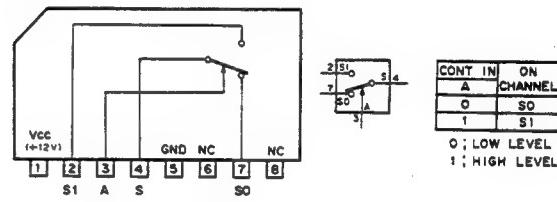
HD14538BP (HITACHI)
TC4538BP (TOSHIBA)
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE
MONOSTABLE MULTIVIBRATOR
— TOP VIEW —



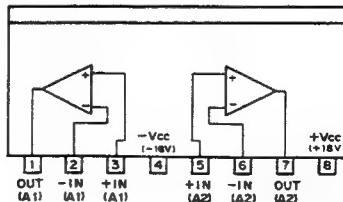
HD14520BP (HITACHI)
MC14520BCP (MOTOROLA)
TC4520BP (TOSHIBA)
TC4520BPHB (TOSHIBA)
μPD4520BC (NEC)
C-MOS DUAL 4-BIT BINARY UP COUNTER
— TOP VIEW —



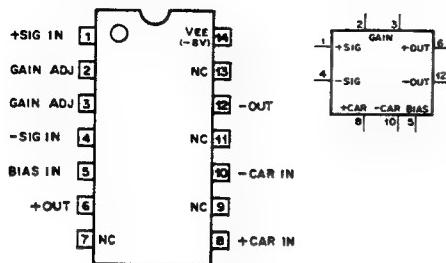
LA7016 (SANYO)
ELECTRONIC SWITCH
— SIDE VIEW —



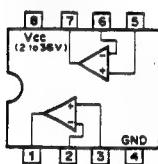
MS218L (MITSUBISHI)
LOW NOISE DUAL OPERATIONAL AMPLIFIER
— SIDE VIEW —



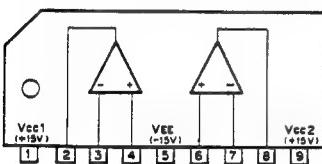
MC1496P (MOTOROLA)
BALANCED MODULATOR/DEMODULATOR
— TOP VIEW —



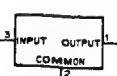
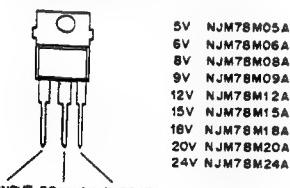
NJM2903D (JRC)
VOLTAGE COMPARATOR
— TOP VIEW —



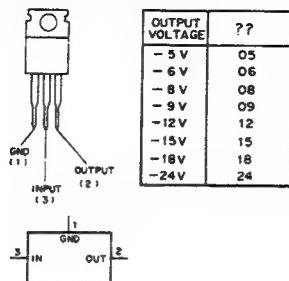
NJM4558S (JRC)
HIGH PERFORMANCE DUAL OPERATIONAL AMPLIFIER
— SIDE VIEW —



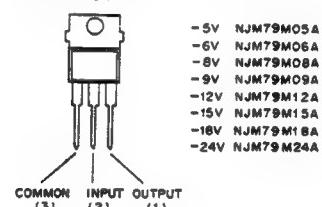
NJM78M12A (JRC)
POSITIVE VOLTAGE REGULATOR (500mA)
— FRONT VIEW —



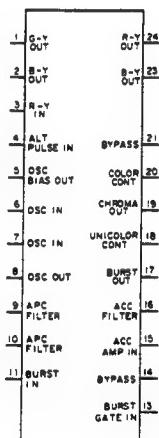
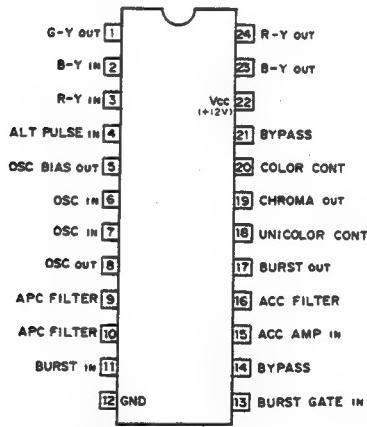
NJM7912A (JRC)
NEGATIVE VOLTAGE REGULATOR (1A)
— SIDE VIEW —



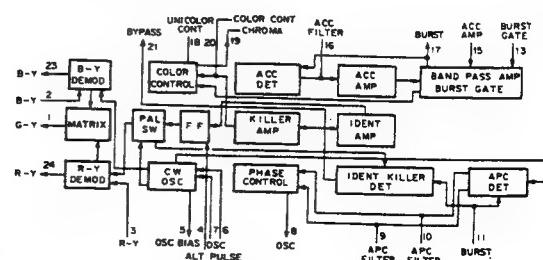
NJM79M12A (JRC)
NEGATIVE VOLTAGE REGULATOR (500mA)
— FRONT VIEW —



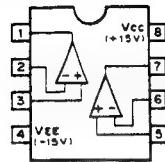
TA7193P (TOSHIBA)
TV CHROMA PROCESS (PAL)
— TOP VIEW —



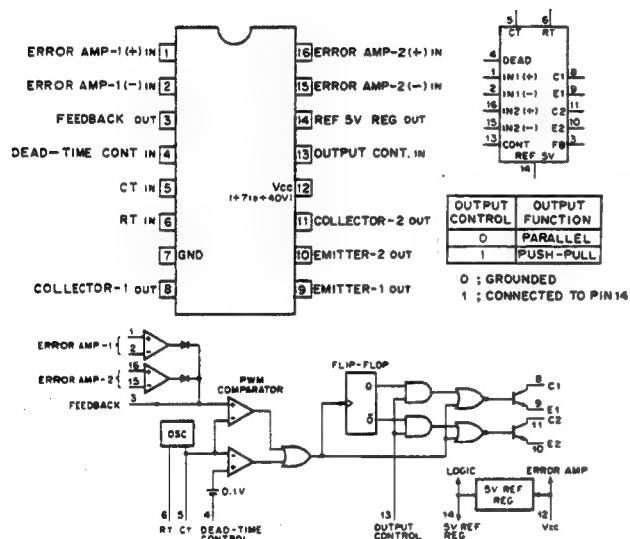
OUT ; OUTPUT
IN ; INPUT
CONT ; CONTROL



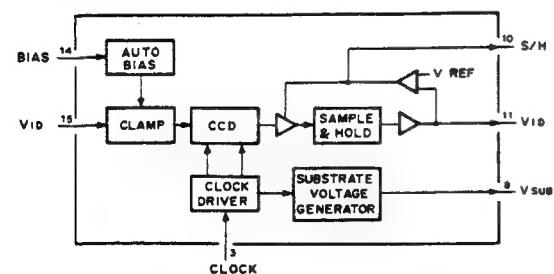
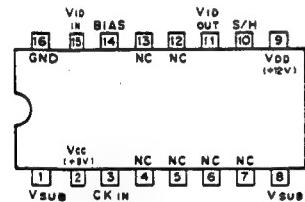
TL082CP (TI)
OPERATIONAL AMPLIFIER
(J FET-INPUT)
— TOP VIEW —



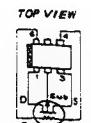
TL494CN (TI)
PWM POWER CONTROL
— TOP VIEW —



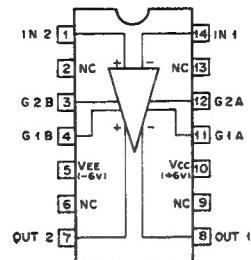
TL860BP (TOSHIBA)
N-CH CCD ANALOG PROCESSING UNIT
— TOP VIEW —



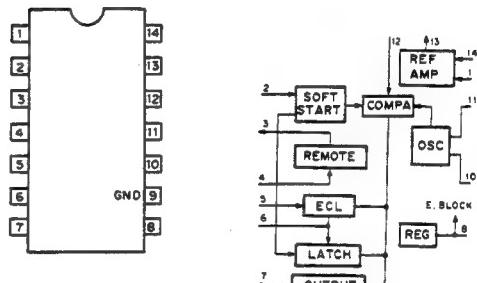
TOP VIEW
TX429M



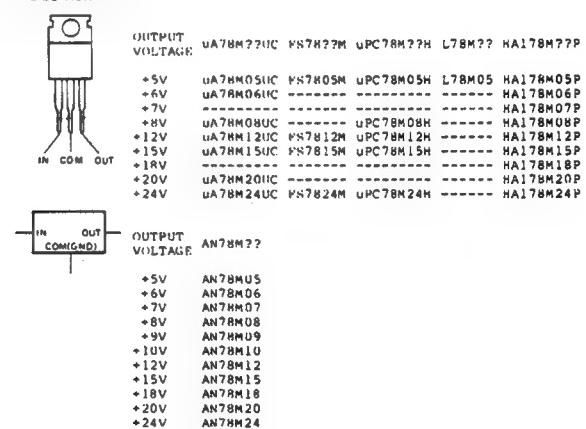
uA733CN (TI)
DIFFERENTIAL VIDEO AMP
— TOP VIEW — **uA733DC**



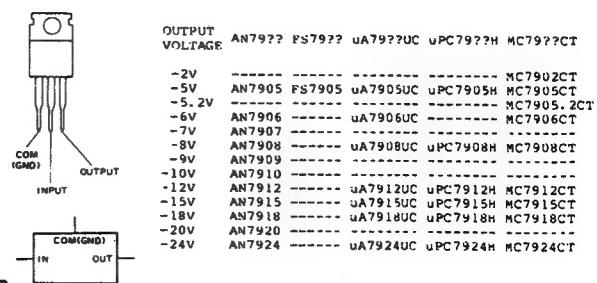
μPC1394C (NEC)
CONTROLLER OF SWITCHING MODE POWER SUPPLY
— TOP VIEW —



μPC78M12H (NEC)
POSITIVE VOLTAGE REGULATOR (0.5A)
— SIDE VIEW —



uPC7912H (NEC)
NEGATIVE VOLTAGE REGULATOR (1A)
— SIDE VIEW —



|||||| 5. DIAGRAMS

**2SA1048
2SA1115
2SC2458
2SC2603
2SC3327
2SC403SP
DTA124ES
DTA144ES
DTC124ES
DTC143TS
DTC144ES**



**2SA1175
2SC2785**

LETTER SIDE



**2SA1142
2SA1406
2SC3600**



**2SA473
2SB858
2SB860
2SB861
2SC1173
2SC3675
2SD1134
2SD1137**



**2SA844
2SA933S
2SA1091
2SC1740
2SC1890A
2SC2551
2SC2878
2SC3068**



**2SA893A
2SB740
2SD789**



2SA979



**2SB734
2SD774**



2SC2555



**2SC2688
2SC2752
2SD669A**



2SC2910



2SD1556



**2SK381
2SK514**



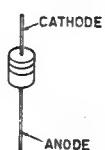
2SK523



1T25



**1SS119
1SS133T
1SS148
RD12ES-T1B1
RD12ES-T1B2
RD13ES-B
RD3.0ES-T1B2
RD4.3ES-T1B
RD6.2ES-T1B**



5-127

1SS83

1S1555

1S1585

1S2076

10E2

EQA02-06A

EQA02-07D

EQA02-08A

EQA02-10B

EQA02-11D

EQA02-14B

ERB44-06

ERD28-04S

ERD28-08S

GP08D

HZT33-02

HZ10EB3

HZ12EB2

HZ15EB3

HZ4.3EB1

HZ4.3EB2

HZ5.6EB2

HZ6.2EB1

HZ6.2EB2

HZ6.2EB3

HZ7.5EB3

HZ9.1EB2

HZ9.1EB3

RD10EB2

RD10EB3

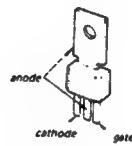
RD9.1EB3

RD9.1EB3

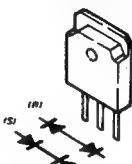
**CR02AM-4
CR02AM-8**



CR3CM-8



**CTU-38R
CTU-38S**



RD12E-B2

RD12EB1

ERC24-04S

ERC24-06S

HZ12EB1

HZ12EB3

HZ3.0EB1

HZ3.0EB2

HZ3.9EB2

HZ9.1EB1

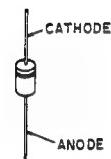
RH-1

RH-1A

RU-1A

RU-1C

SIB01-02

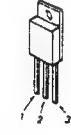


ESAC25-04C

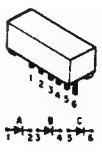
**ESAC25-04N
ESAD25-04D**



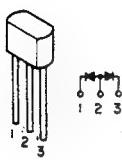
ESAC31-02D



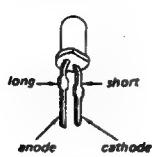
LT9010H



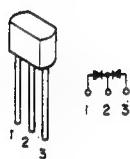
MC911



**TLG124A
TLO124
TLR124
TLY124**



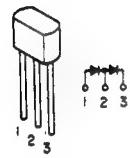
MC921



**U05G
V11N**



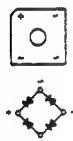
MC931



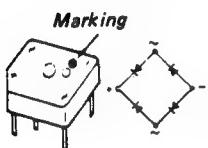
μ PC574J



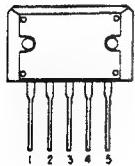
RB406NH



S3WB60Z



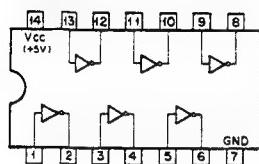
STR8124



(BVM-2010PD/PMD ONLY)

74F04 PC (FSC)
TTL INVERTER

— TOP VIEW —



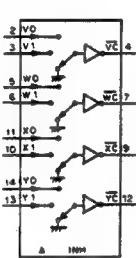
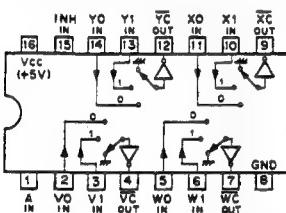
$$A \rightarrow Y = A \rightarrow Y$$

$$Y = \bar{A}$$

A	Y
0	1
1	0

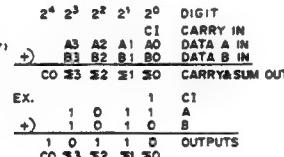
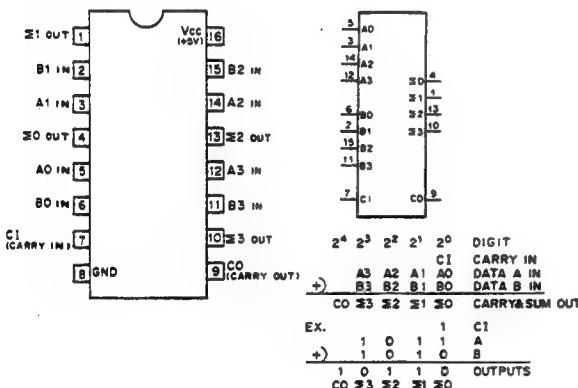
0: LOW LEVEL
1: HIGH LEVEL

**74F158 APC (FSC)
74F158 PC (FSC)
MC74F158N (MOTOROLA)**
TTL 2-LINE-TO-1-LINE INVERTED DATA SELECTOR/MUX
— TOP VIEW —



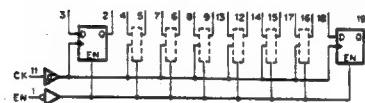
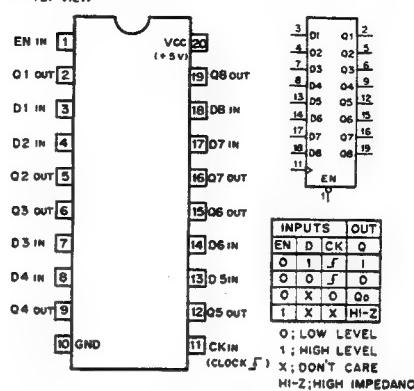
CONT.	IN	ON	CHANNEL
O: LOW LEVEL	0	0	0
1: HIGH LEVEL	0	1	1
X: DON'T CARE	1	X	GND

74F283PC (FSC)
TTL 4-BIT BINARY FULL ADDER
— TOP VIEW —

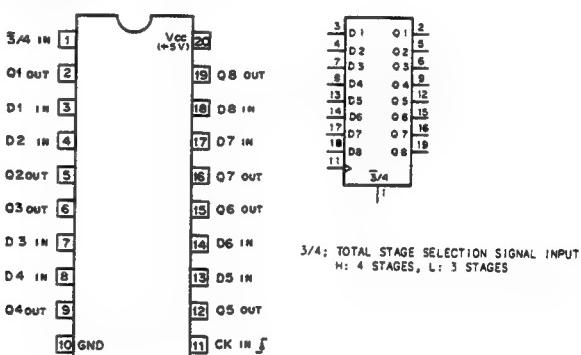


DIGIT
2⁴ 2³ 2² 2¹ 2⁰
C_i CARRY IN
A₃ A₂ A₁ A₀
DATA A IN
B₃ B₂ B₁ B₀
DATA B IN
CO 2₃ 2₂ 2₁ 2₀ CARRY & SUM OUT
EX.
1 0 1 1 C_i
+ 1 0 1 0 A
--- 1 0 1 0 D
CO 2₃ 2₂ 2₁ 2₀ OUTPUTS

74F374PC (FSC)
TTL 3-STATE OUTPUTS OCTAL D-TYPE FLIP-FLOP
— TOP VIEW —

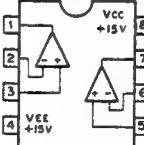


CX20160 (SONY)
TTL OCTAL 3 OR 4 STAGE SHIFT REGISTER
— TOP VIEW —



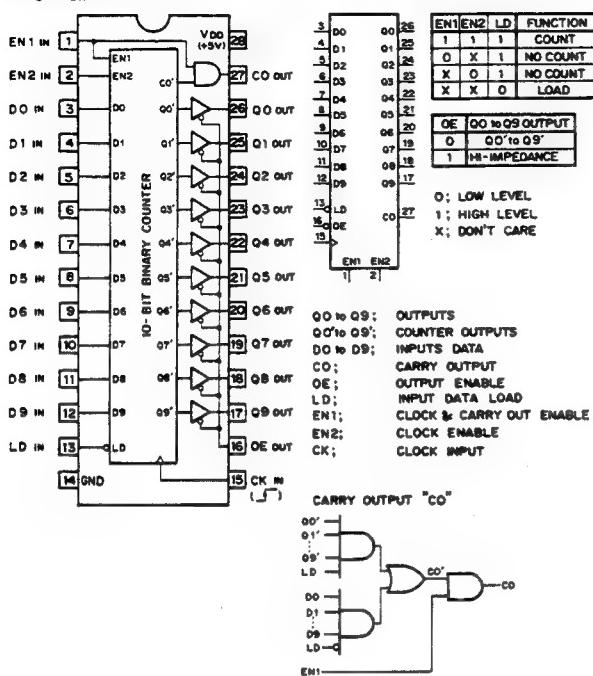
3/4: TOTAL STAGE SELECTION SIGNAL INPUT
H: 4 STAGES, L: 3 STAGES

CX20197 (SONY)
DUAL OPERATIONAL AMPLIFIER
— TOP VIEW —

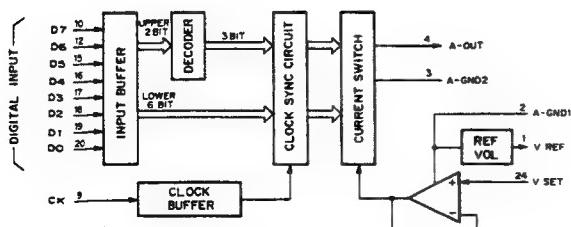
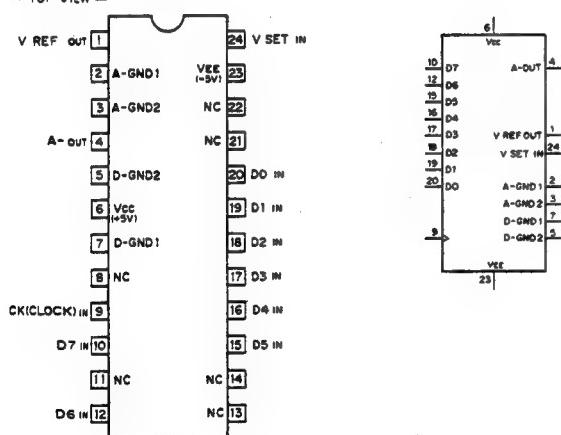


(BVM-2010PD/PMD ONLY)

CX23043 (SONY)
N-MOS SYNCHRONOUS 10-BIT BINARY COUNTER
TOP VIEW



CXA1106P (SONY)
8-BIT D/A CONVERTER (TTL INPUT)
TOP VIEW



CXB1001G (SONY)
4:2:2 PARALLEL INTERFACE FOR 525/625-LINE DIGITAL VIDEO SIGNALS
— TOP VIEW —

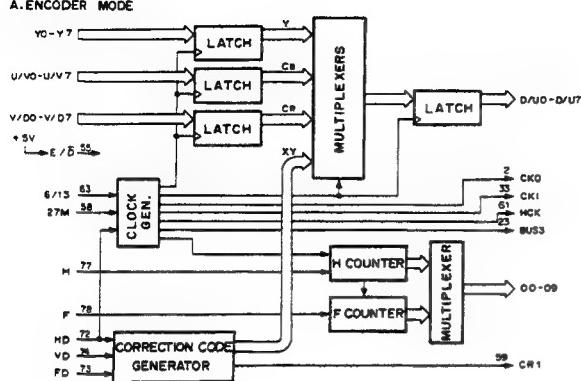
INDEX

PIN NO.	/	SYMBOL	PIN NO.	/	SYMBOL	PIN NO.	/	SYMBOL	PIN NO.	/	SYMBOL
1		NC	23	0	BUS3	45	0	DINH	67	1	CR3
2	0	CK0	24	0	BUS3	46	1/0	Y7	68	1	CR2
3	1/0	U/V7	25	0	D/U0	47	1/0	Y6	69	1	TS1
4	1/0	U/V6	26	0	D/U1	48	1/0	Y5	70	0	BUS4
5	1/0	U/V5	27	0	D/U2	49	1/0	Y4	71	1	TS3
6	1/0	U/V4	28	0	D/U3	50	1/0	Y3	72	1	HD
7	1/0	U/V3	29	0	D/U4	51	1/0	Y2	73	1	FD
8	1/0	U/V2	30	0	D/U5	52	1/0	Y1	74	1	VD
9	1/0	U/V1	31	0	D/U6	53	1/0	Y0	75	1	HF
10	1/0	U/V0	32	0	D/U7	54	0	OBIT	76	1	FF
11	0	BUS6	33	0	CK1	55	1	E	77	1/0	H
12	0	BUS7	34	0	OPN	56	1	IPH	78	1/0	F
13	0	BUS8	35	0	00	57	1	CR5	79	0	V
14	1	V/D0	36	0	01	58	1	27M	80	1	16
15	1	V/D1	37	0	02	59	1	CRI	81		Vec1-3
16	1	V/D2	38	0	03	60	1	TS2	82		Vec1-3
17	1	V/D3	39	0	04	61	0	HCK	83		GND
18	1	V/D4	40	0	05	62	1	TS4	84		GND
19	1	V/D5	41	0	06	63	1/0	6/3	85	1	Vec1-3
20	1	V/D6	42	0	07	64	0	BUS9	86		Vec1-3
21	1	V/D7	43	0	08	65	1	SEL	87		GND
22	0	BUS2	44	0	09	66	1	CR4	88		GND

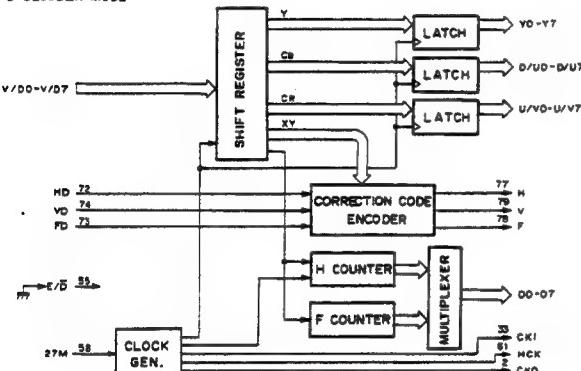
SYMBOL	FUNCTION
Y0-Y7	ENCODER MODE (E/D = "H") Y SIGNAL INPUTS
U/V0-U/V7	C ₀ SIGNAL INPUTS
V/D0-V/D7	C ₁ SIGNAL INPUTS
D/U0-D/U7	MULTIPLICATOR DATA INPUTS
00-09	MULTIPLICATOR DATA OUTPUTS
E/D	EXTERNAL PROM ADDRESS OUTPUTS
27M	ENCODER/DECODER MODE SELECT INPUT
HD	CLOCK INPUT (27MHz)
FD	(H)
VD	TIMING SIGNAL INPUTS (F)
CKQ	(V)
CK1	DAU SYNCHRONOUS CLOCK OUTPUT C ₀ SYNCHRONOUS CLOCK OUTPUT
5/13	INPUT DATA LATCH CLOCK (5MHz) INPUT DATA LATCH CLOCK (27MHz)
C ₀	C ₁ C ₀ SYNCHRONOUS CLOCK INPUT 13.5MHz CLOCK OUTPUT
H	REFERENCE H INPUT DECODE H OUTPUT
F	REFERENCE F INPUT DECODE F OUTPUT
V	DECODE V OUTPUT DECODE V OUTPUT
IFH	CONNECT WITH +5V
HCK	6.75MHz H COUNTER CLOCK OUTPUT
SEL	
HF	
FF	
IG	CONNECT WITH "+5V"
CR1-CR5	
TS1-TS4	
OPN	
OINH	
OBIT	
BS02-BUS0	
	FOR TEST

(BVM-2010PD/PMD ONLY)

BLOCK DIAGRAMS A. ENCODER MODE

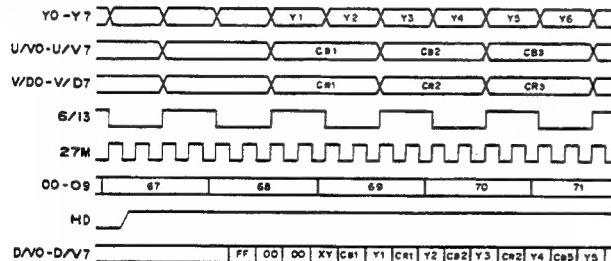


B. DECODER MODE



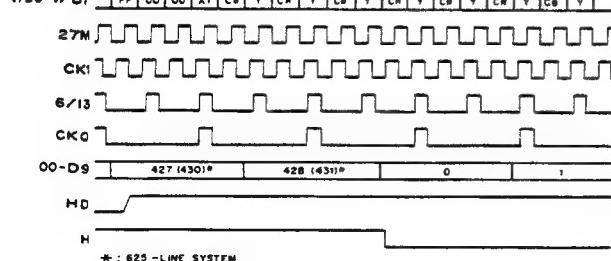
TIMING CHART
A. ENCODER MODE

A. ENCODER MODE



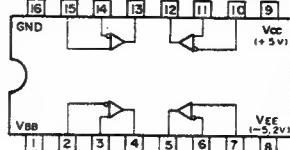
B. DECODER MODE

V/D0-V/D7



HD10125 (HITACHI)
MC10125L (MOTOROLA)
ECL ECL-TO-TTL TRANSLATOR
— TOP VIEW —

—TOP VIEW—

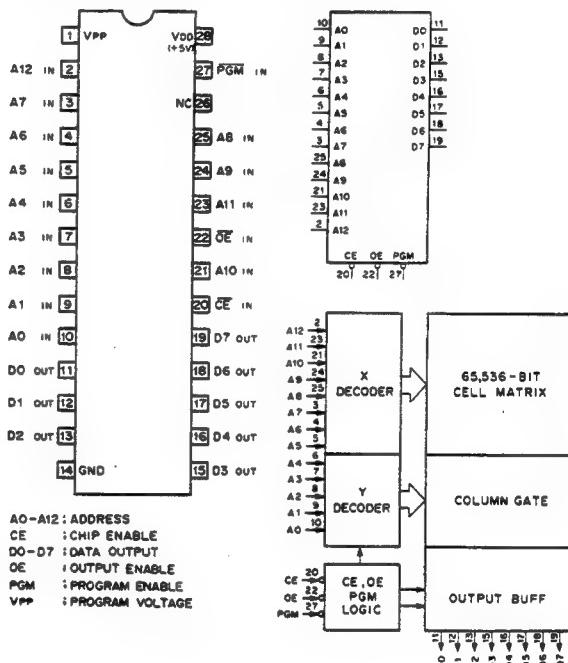


HN17C84G-20 (HITACHI)

MBM27C64-25 (FUJITSU) (ACCESS TIME = 250 nS)

C-MOS 64K (8K-8) ERASABLE PROM WITH 3-STATE OUTPUTS

— TOP VIEW —



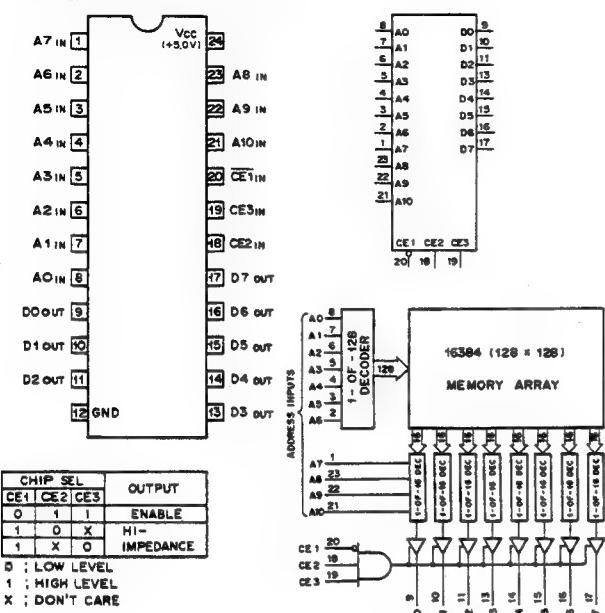
AN	CE	OE	PGM	V _{PP}	Dn	FUNCTION
An	O	O	1	+5V	D OUT	READ
An	Q	I	1	+5V	HI-Z	OUTPUT DISABLE
An	O	O	0	+5V	HI-Z	OUTPUT DISABLE
X	1	X	X	+5V	HI-Z	STANDBY
An	O	X	U	+2MV	DIN	PGM
An	O	O	1	+2IV	D OUT	PGM VERIFY
X	1	X	X	+2IV	HI-Z	PGM INH

O: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE
HI-Z: HIGH IMPEDANCE

5. DIAGRAMS

(BVM-2010PD/PMD ONLY)

MB2138HSK (FUJITSU) (ACCESS TIME = 45 nS)
16384-BIT (2048x8) PROM WITH 3-STATE OUTPUTS
— TOP VIEW —

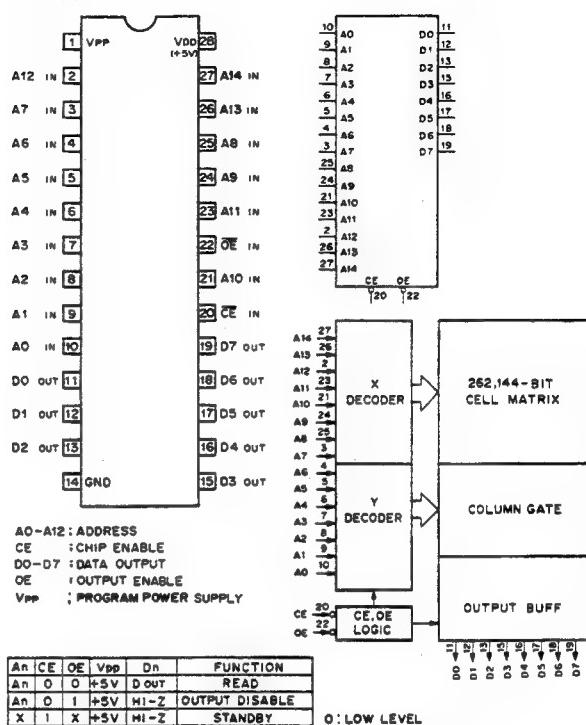


WORD / ADDRESS TABLE	
WORD	ADDRESS INPUT
0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1
2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0
...	...
2045	1 1 1 1 1 1 1 1 1 1 1 1 1 0 1
2046	1 1 1 1 1 1 1 1 1 1 1 1 1 0 0
2047	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

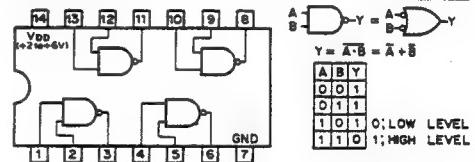
DATA CODE / ACTUAL DATA	
DATA CODE	ACTUAL DATA
D7 D6 D5 D4 D3 D2 D1 D0	0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
1 0 0 0 0 0 0 0	0 0 0 0 0 0 0 1
2 0 0 0 0 0 0 0	0 0 0 0 0 0 0 1
...	...
8 0 0 0 0 0 0 0	0 0 0 0 1 0 0 0
9 0 0 0 0 0 0 0	0 0 0 0 0 1 0 0
10 0 0 0 0 0 0 0	0 0 0 0 0 0 1 0
11 0 0 0 0 0 0 0	0 0 0 0 0 0 0 1
12 0 0 0 0 0 0 0	0 0 0 0 0 0 1 0
13 0 0 0 0 0 0 0	0 0 0 0 0 1 1 0
14 0 0 0 0 0 0 0	0 0 0 0 1 1 1 0
15 0 0 0 0 0 0 0	0 0 0 0 1 1 1 1
16 1 0 0 0 0 0 0	0 0 0 1 0 0 0 0
17 1 1 0 0 0 0 0	0 0 1 0 0 0 0 1
...	...
238 E E 1 1 1 0 1 0	1 1 1 0 1 1 1 0
239 E F 1 1 1 0 1 1	1 1 1 0 1 1 1 1
240 F O 1 1 1 1 0 0	1 1 1 1 0 0 0 0
241 F 1 1 1 1 0 0 0	1 1 1 1 0 0 0 1
242 F 2 1 1 1 1 0 0	1 1 1 1 0 0 1 0
...	...
248 F B 1 1 1 1 1 0	1 1 1 1 1 0 0 0
249 F 9 1 1 1 1 1 0	1 1 1 1 1 0 0 1
250 F A 1 1 1 1 1 0	1 1 1 1 1 0 1 0
251 F B 1 1 1 1 1 1	1 1 1 1 1 0 1 1
252 F C 1 1 1 1 1 1	1 1 1 1 1 1 0 0
253 F D 1 1 1 1 1 1	1 1 1 1 1 1 0 1
254 F E 1 1 1 1 1 1	1 1 1 1 1 1 1 0
255 F F 1 1 1 1 1 1	1 1 1 1 1 1 1 1

IN HEXADECIMAL
IN DECIMAL

MB272C256-25 (FUJITSU) (ACCESS TIME = 250 nS)
C-MOS 256K (32Kx8) ERASABLE PROM WITH 3-STATE OUTPUTS
— TOP VIEW —



TC74HC0OP (TOSHIBA)
C-MOS 2-INPUT NAND GATE
— TOP VIEW —



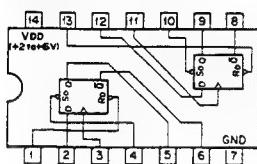
(BVM-2010PD/PMD ONLY)

MC74HC74N (MOTOROLA)

TC74 HC74P (TOSHIBA)

C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET

— TOP VIEW —



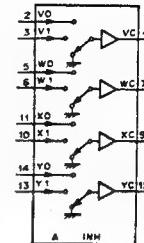
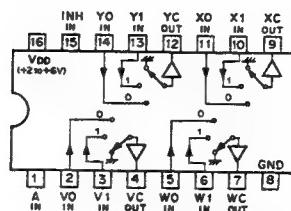
INPUTS	OUTPUTS
S _d /D _{CK}	D _{Qn+1} Q _{n+1}
0 1 X	X 0
1 0 X	X 0
0 0 X	X 1*
1 1 X	1 0
1 1 0	0 1
1 1 0 X	0 n

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE
*: NONSTABLE

TC74HC157P (TOSHIBA)

C-MOS 2-LINE-TO-1-LINE DATA SELECTOR/MUX

— TOP VIEW —

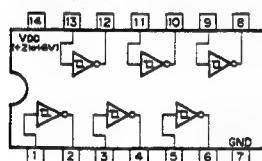


CONT. IN	ON CHANNEL
0: LOW LEVEL	0 0 0
1: HIGH LEVEL	0 1 1
X: DON'T CARE	1 X GND

TC74HC14P (TOSHIBA)

C-MOS SCHMITT TRIGGER INVERTER

— TOP VIEW —



$$A \rightarrow Y = A \rightarrow Y$$

$$Y = \bar{A}$$

$$V_{IN} \rightarrow V_{OUT}$$

$$V_{OUT}$$

$$0: \text{LOW LEVEL}$$

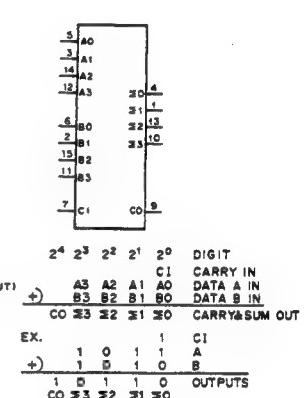
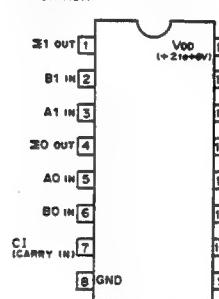
$$1: \text{HIGH LEVEL}$$

V _D	V _H	V _T
2.0V	0.75V	1.25V
4.5V	1.8V	2.7V
6.0V	2.6V	3.6V

TC74HC283P (TOSHIBA)

C-MOS 4-BIT FULL ADDER

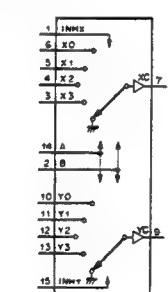
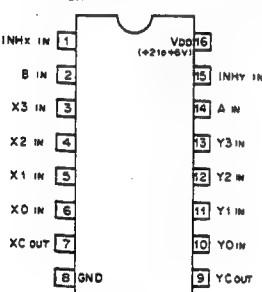
— TOP VIEW —



TC74HC153P (TOSHIBA)

C-MOS 4-LINE-TO-1-LINE DATA SELECTOR/MUX

— TOP VIEW —



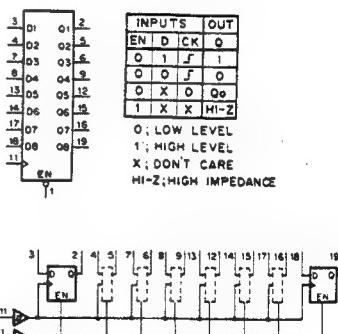
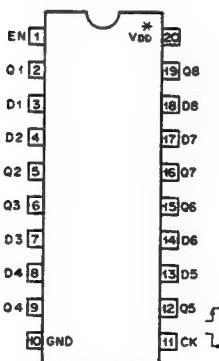
CONTROL IN	ON CHANNEL
INH B A	0
0 0 0	0
0 0 1	1
0 1 0	2
0 1 1	3
1 X X	GND

0: LOW LEVEL
1: HIGH LEVEL
X: DON'T CARE

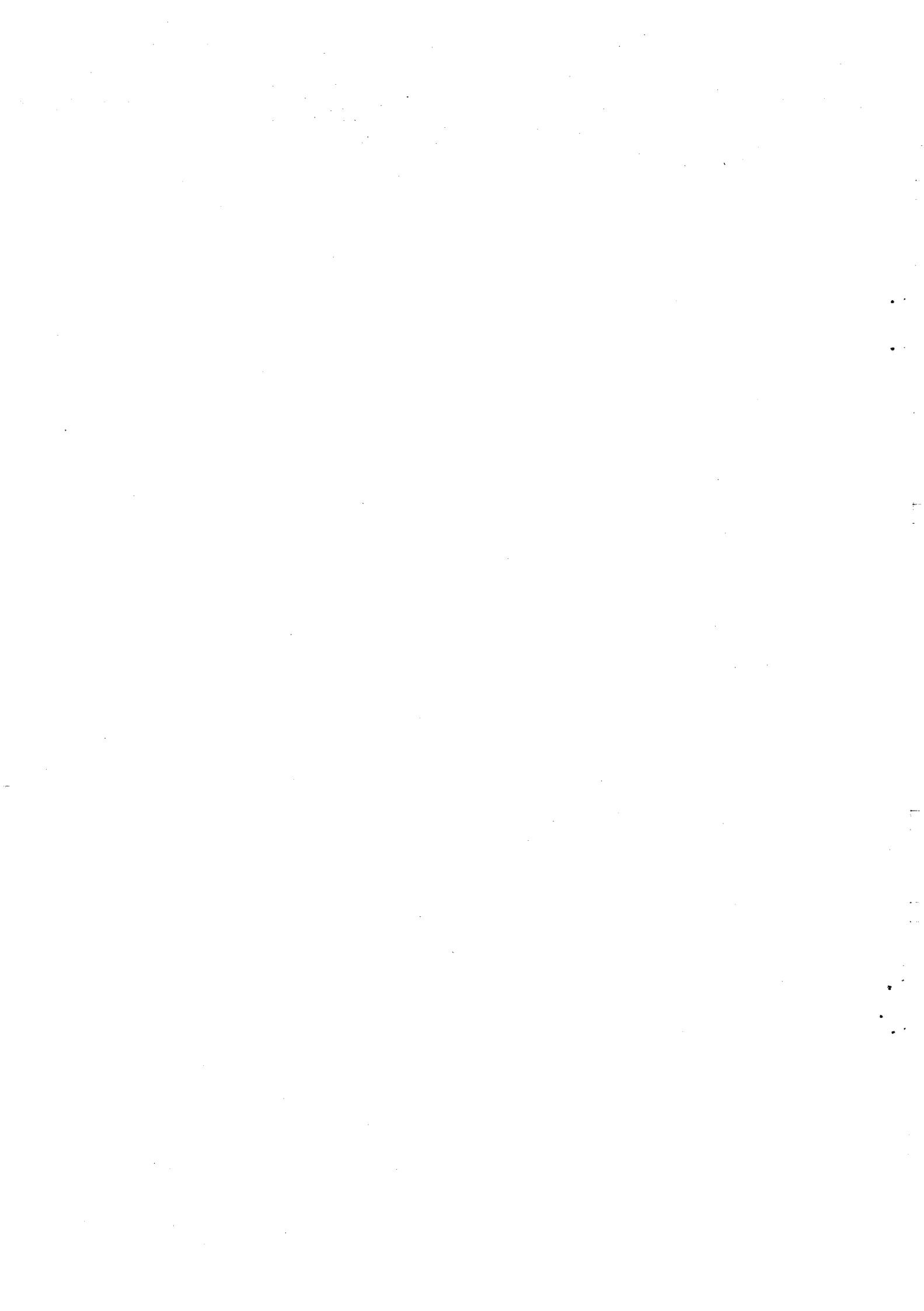
TC74HC374P (TOSHIBA)

C-MOS 3-STATE OCTAL D-TYPE FLIP-FLOP

— TOP VIEW —



*V_D HC: +2 to +6V
HCT: +5V



SECTION 6

EXPLODED VIEWS

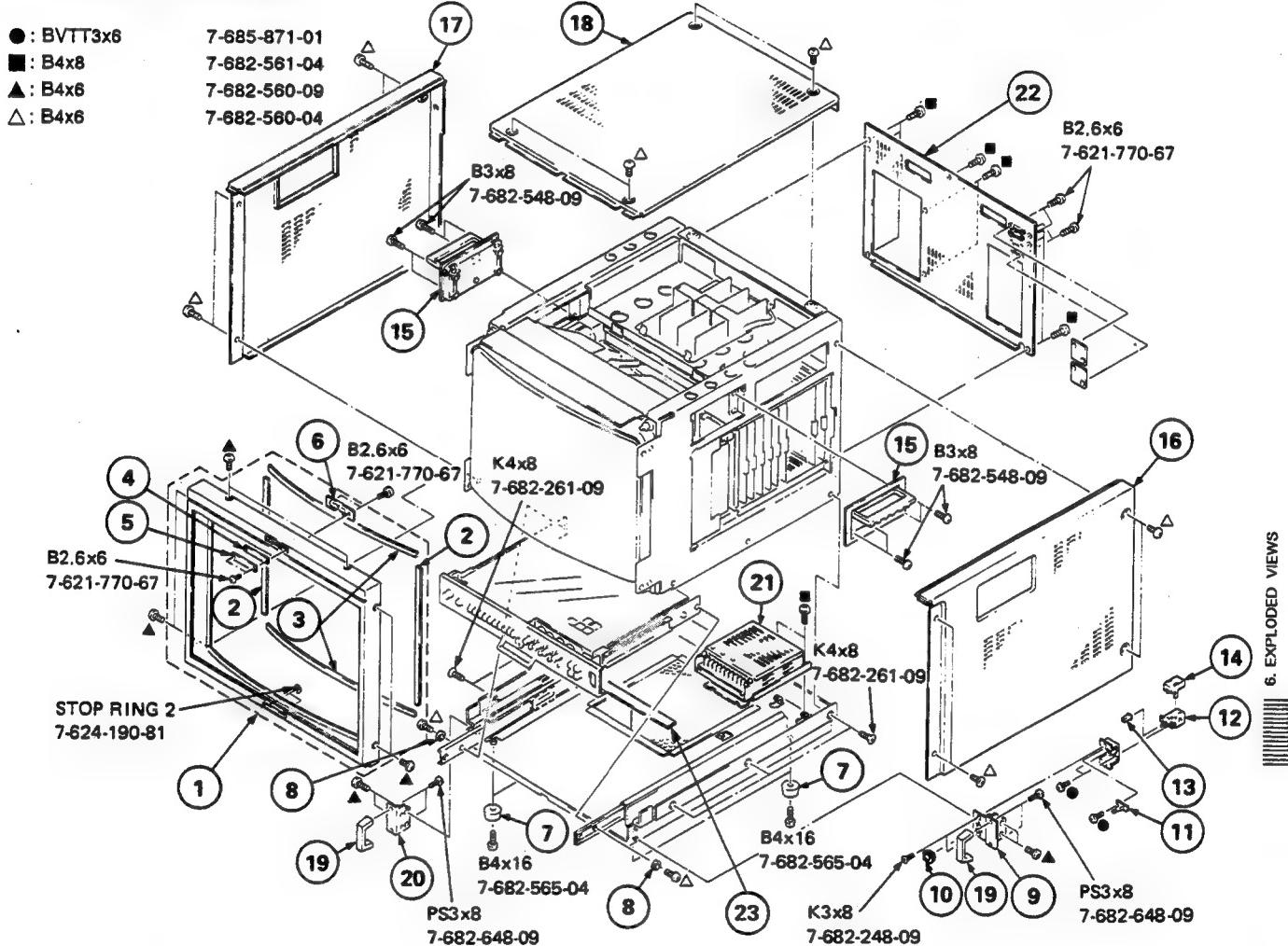
NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
 - The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark **A** are critical for safety.
Replace only with part number specified.

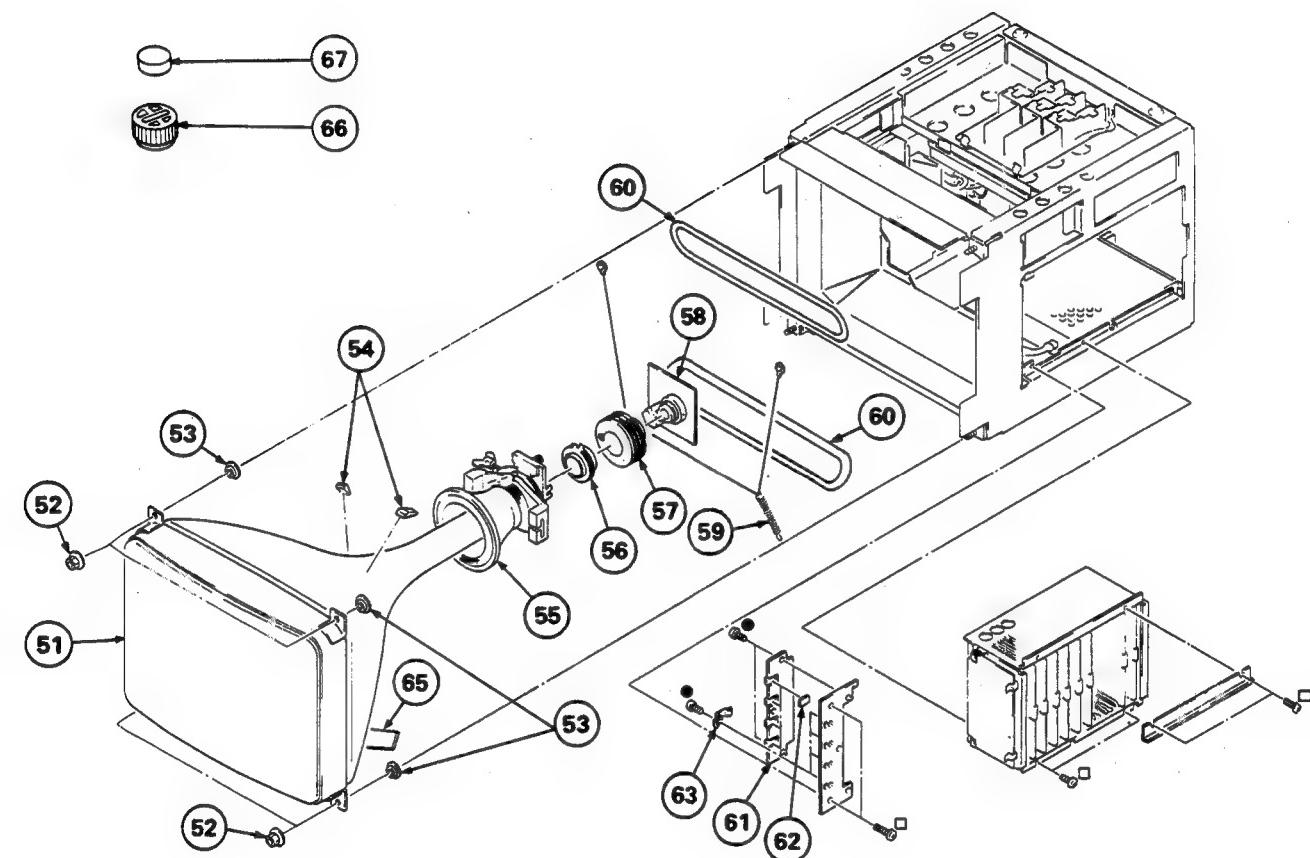
6-1. BEZEL AND COVERS



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
1	X-4379-412-1	BEZEL ASSY		14	4-373-038-01	COVER, SWITCH, POWER	
2	4-308-878-XX	CUSHION (B), BEZEL	2, 3	15	X-3642-018-0	HANDLE ASSY	
3	4-308-878-XX	CUSHION (A), CRT		16	*4-386-832-01	COVER (RIGHT)	
4	*4-386-839-01	PLATE, TALLY		17	*4-386-833-01	COVER (LEFT)	
5	*4-386-840-01	PLATE (B), TALLY		18	*4-386-831-01	COVER (UPPER)	
6	*1-623-002-11	XB BOARD		19	*4-353-706-00	HANDLE	
7	X-4836-202-9	FOOT		20	*4-386-808-01	BRACKET (LEFT), HANDLE	
8	*4-379-499-01	SPACER		21	▲ 1-413-319-11	REGULATOR, SWITCHING (GSK 20-1205) (BVM-2010PD/PMD ONLY)	
9	*X-4379-408-1	PANEL ASSY, POWER SWITCH		22	*4-386-811-03	COVER, REAR (BVM-2010P/PM ONLY)	
10	4-379-423-01	ESCUOTCHEON (A)			*4-386-866-01	COVER, REAR (BVM-2010PD/PMD ONLY)	
11	*1-617-893-11	Y BOARD		23	4-372-556-01	SHEET, BLOTTING	
12	▲ 1-570-052-12	SWITCH, PUSH (AC POWER) (1 KEY)					
13	4-374-839-11	BUTTON (A)					

6-2. PICTURE TUBE

● : BVTT3x6 7-685-871-01
 □ : B3x10 7-682-549-04



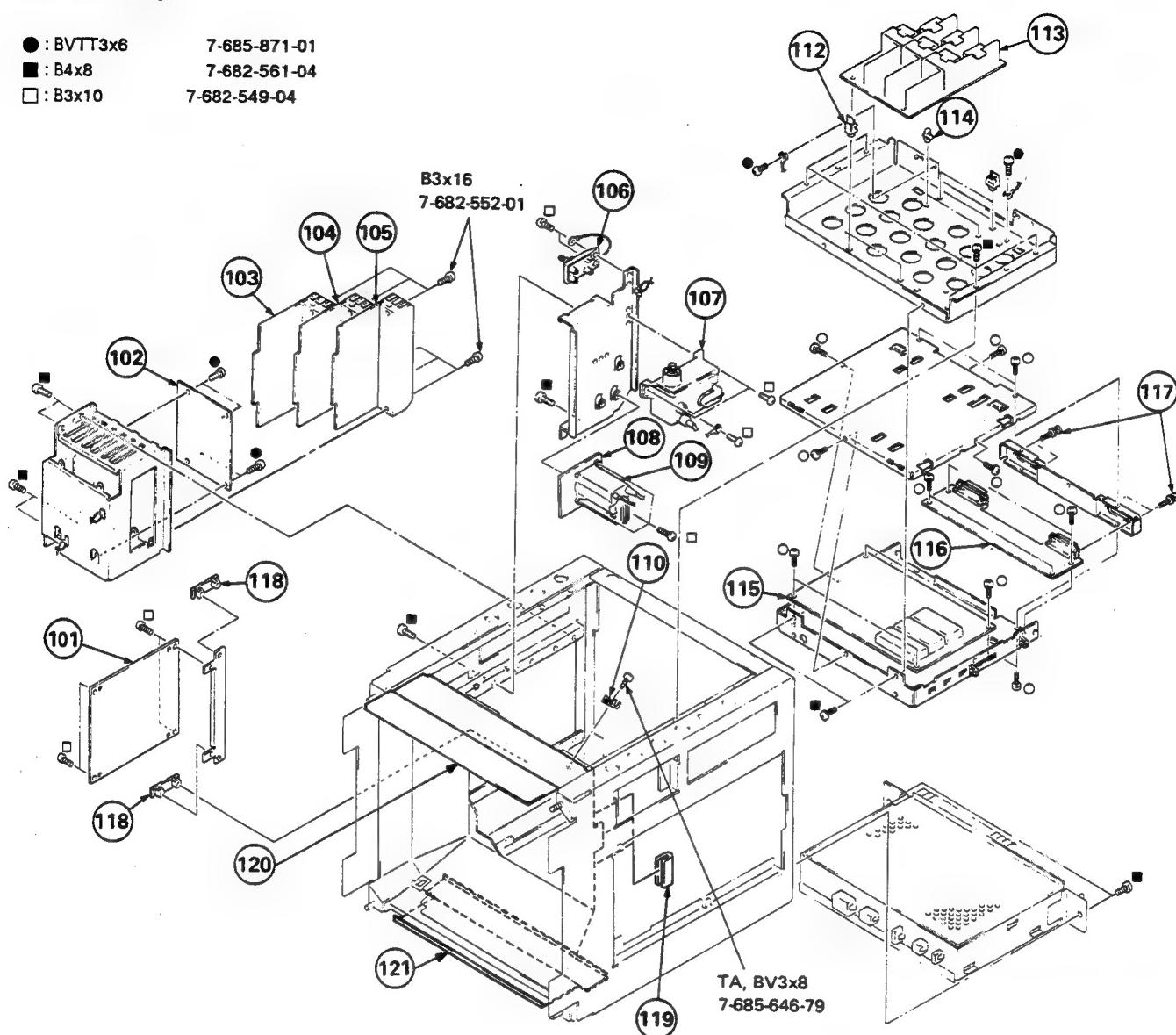
6. EXPLODED VIEWS

The components identified by shading and mark Δ are critical for safety.
 Replace only with part number specified.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	Δ 8-733-054-05	PICTURE TUBE (M49JJP21X)		60	Δ 1-426-328-11	COIL, DEGAUSSING	
52	4-306-034-00	FLANGE NUT, (B) 5MM		61	*1-617-885-11	GC BOARD	
53	4-348-567-00	WASHER, CRT POSITION		62	4-370-970-01	SPACER, TR	
54	3-703-961-01	SPACER, DY		63	*4-363-404-00	HOLDER, IC	
55	Δ 1-451-287-21	DEFLECTION YOKE (Y14FAA)		65	3-831-441-11	CLOTH, BLOTTING	
56	Δ 1-452-261-22	CRT NECK ASSY (326)		66	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM ϕ	
57	Δ 1-452-117-31	CRT NECK ASSY		67	1-452-032-00	MAGNET, DISK; 10MM ϕ	
58	*1-617-889-11	C BOARD					
59	4-303-774-XX	SPRING					

6-3. CHASSIS

● : BVTT3x6 7-685-871-01
 ■ : B4x8 7-682-561-04
 □ : B3x10 7-682-549-04

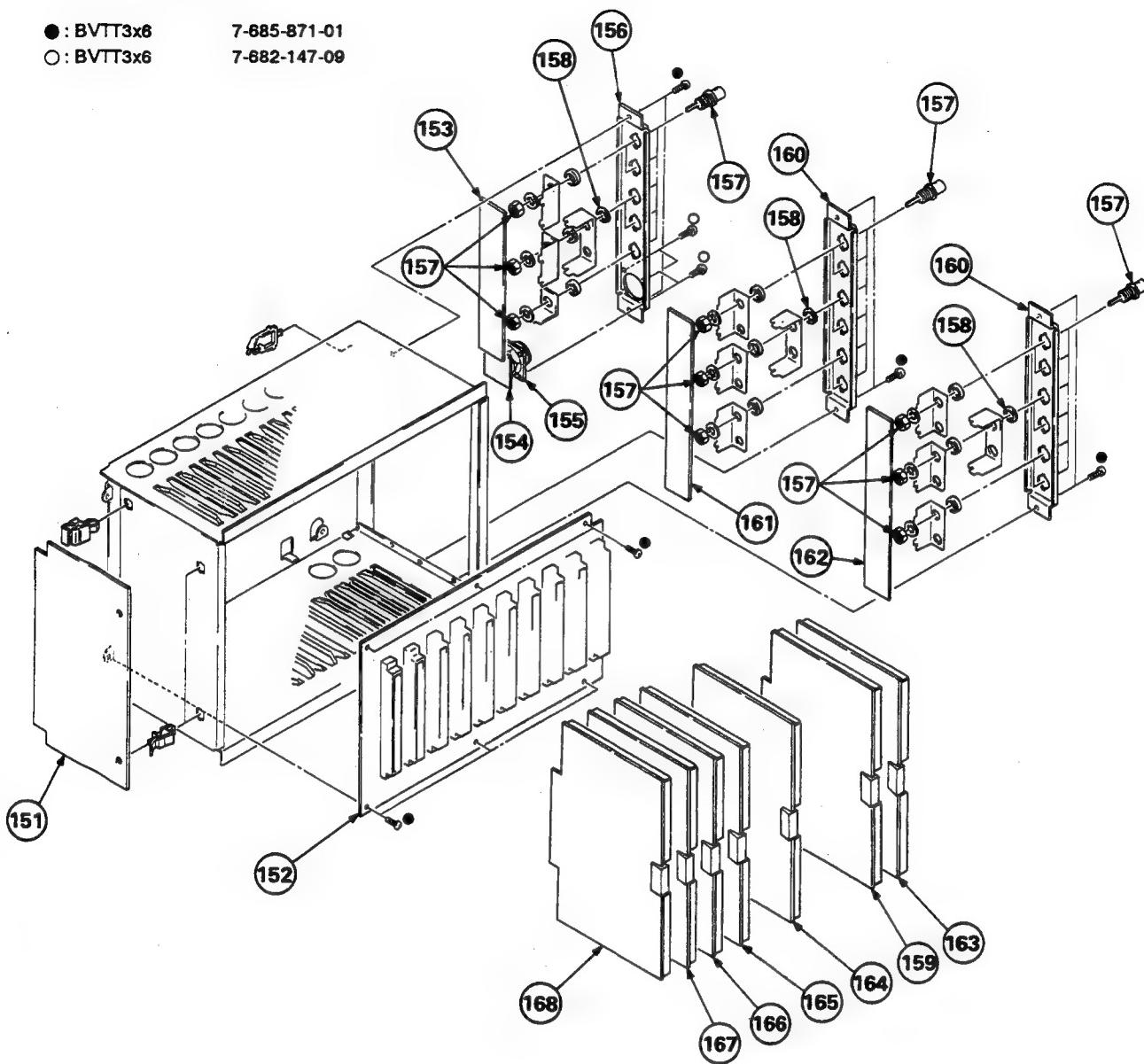


The components identified by shading and mark Δ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	*A-1345-732-A	DB BOARD, COMPLETE		112	*3-703-141-00	HOLDER, PCB	
102	*1-617-898-11	TA BOARD		113	*A-1135-464-A	BK BOARD, COMPLETE	
103	*A-1345-730-A	EA BOARD, COMPLETE		114	*3-670-570-11	SPACERR, SUPPORT	
104	*A-1345-731-A	EB BOARD, COMPLETE		115	*A-1275-088-A	QD BOARD, COMPLETE (BVM-2010PD/PMD ONLY)	
105	*A-1394-128-A	PA BOARD, COMPLETE		116	*1-623-851-11	QE BOARD (BVM-2010PD/PMD ONLY)	
106	Δ 1-237-165-11	RESTSTOR ASSY, HIGH-VOLTAGE		117	2-133-531-01	SCREW, CONNECTOR (BVM-2010PD/PMD ONLY)	
107	Δ 1-453-103-31	HIGH-VOLTAGE BLOCK		118	*4-313-732-00	CLIP, HINGE, CIRCUIT BOARD	
108	*1-617-891-11	PB BOARD		119	*4-911-234-01	EDGING	
109	Δ 1-439-382-21	TRANSFORMER ASSY, FLYBACK		120	*4-386-819-02	STAY, FRONT	
110	*4-309-624-00	TERMINAL, EARTH		121	*4-391-234-03	STAY, UNDER	

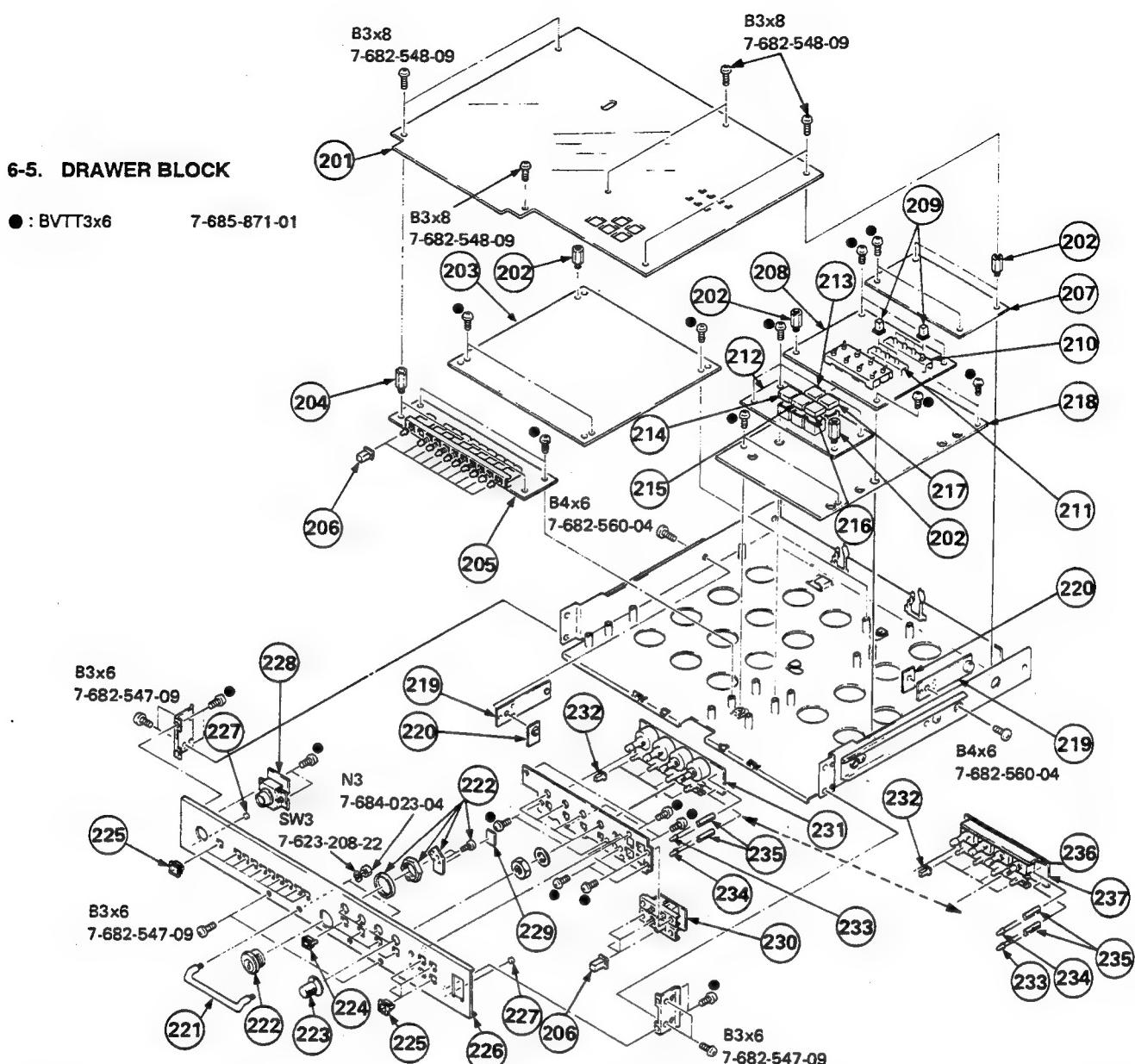
6-4. SIGNAL BLOCK

● : BVTT3x6 7-685-871-01
 ○ : BVTT3x6 7-682-147-09



6. EXPLODED VIEWS

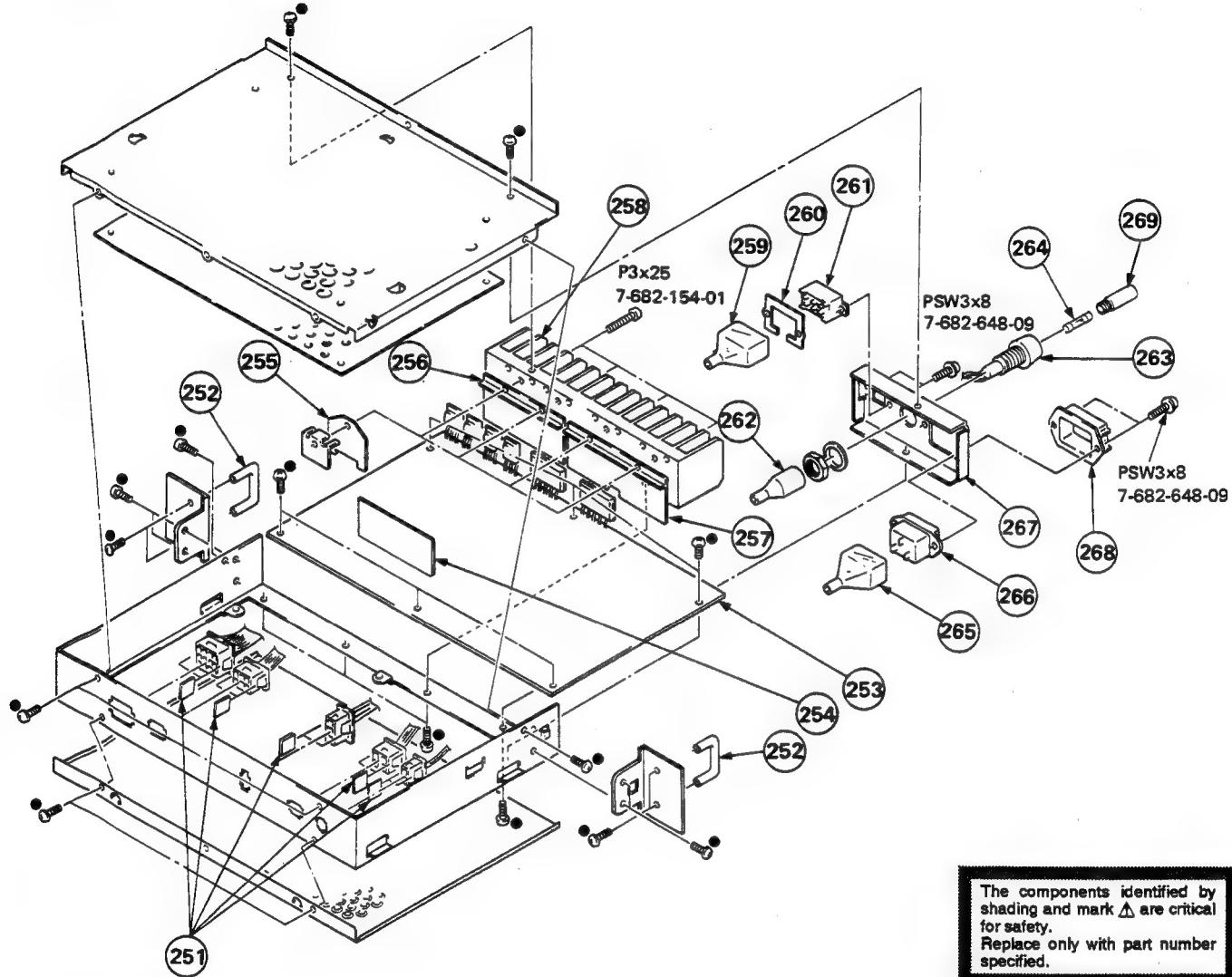
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	*A-1285-072-A	RB BOARD, COMPLETE		160	*4-379-439-01	PANEL (A), CONNECTOR	
152	*1-617-899-11	TB BOARD		161	*1-618-786-11	QB BOARD	
153	*1-617-897-11	W BOARD		162	*1-617-895-11	QA BOARD	
154	*1-617-896-11	V BOARD		163	*A-1135-355-A	BA BOARD, COMPLETE	
155	1-563-265-11	CONNECTOR, MULTIPLE 10P		164	*A-1135-391-A	BD BOARD, COMPLETE (BVM-2010P/PD ONLY)	
156	*4-379-440-01	PANEL (B), CONNECTOR		165	*A-1135-424-A	BM BOARD, COMPLETE (BVM-2010PM/PMD ONLY)	
157	1-565-791-11	CONNECTOR, BNC 1P		166	*A-1135-359-A	BH BOARD, COMPLETE	
158	*4-379-404-01	INSULATOR, BNC		167	*A-1135-360-A	BI BOARD, COMPLETE	
159	*A-1135-472-A	BR BOARD, COMPLETE (BVM-2010PD/PMD ONLY)		168	*A-1135-361-A	BJ BOARD, COMPLETE	



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
201	#4-386-845-01	COVER, PC BOARD		225	4-379-423-01	ESCUTCHEON (A)	
202	*2-264-136-00	SUPPORT, SWITCH, PUSH BUTTON		226	4-386-822-01	PANEL, CONTROL	
203	#A-1345-736-A	DA BOARD, COMPLETE		227	*4-911-672-01	FELT, COVER	
204	3-897-313-01	BOSS (17.2), RELAY		228	*1-623-001-11	HF BOARD	
205	*1-617-890-11	HA BOARD		229	4-337-209-11	PROTECTOR, SCRATCH	
206	4-374-839-01	BUTTON (A)		230	*1-617-887-11	HC BOARD	
207	*A-1340-989-A	DC BOARD, COMPLETE		231	*1-617-888-11	HD BOARD	
208	*1-617-886-11	HB BOARD				(Serial No. Up to 2,001,080 BVM-2010P ONLY)	
209	4-369-627-11	PUSH BUTTON				(Serial No. Up to 2,000,041 BVM-2010PD ONLY)	
210	1-570-568-11	SWITCH, PUSH (4 KEY)				(Serial No. Up to 2,000,003 BVM-2010PM ONLY)	
211	1-570-569-11	SWITCH, PUSH (3 KEY)		232	4-379-422-01	BUTTON (B)	
212	*1-618-814-11	HE BOARD		233	8-719-812-41	DIODE TLR124	
213	4-379-004-01	KEY TOP		234	8-719-938-68	TLY124	
214	4-379-004-11	KEY TOP		235	*4-026-910-00	HOLDER, LED	
215	4-379-004-41	KEY TOP		236	1-627-682-11	HH BOARD	
						(Serial No. 2,001,081 and Higher BVM-2010P ONLY)	
						(Serial No. 2,000,004 and Higher BVM-2010PM ONLY)	
						(Serial No. 2,000,042 and Higher BVM-2010PD ONLY)	
						(Serial No. 2,000,001 and Higher BVM-2010PMD ONLY)	
216	4-379-004-31	KEY TOP		237	1-627-681-11	HG BOARD	
217	4-379-004-21	KEY TOP				(Serial No. 2,001,081 and Higher BVM-2010P ONLY)	
218	*A-1285-073-A	RA BOARD, COMPLETE				(Serial No. 2,000,004 and Higher BVM-2010PM ONLY)	
219	*X-4379-407-1	STOPPER ASSY				(Serial No. 2,000,042 and Higher BVM-2010PD ONLY)	
220	*4-386-844-01	NUT, PLATE				(Serial No. 2,000,001 and Higher BVM-2010PMD ONLY)	
221	4-386-802-01	HANDLE, DRAWER				(Serial No. 2,001,081 and Higher BVM-2010P ONLY)	
222	4-378-917-01	LOCK, CYLINDER				(Serial No. 2,000,004 and Higher BVM-2010PM ONLY)	
223	X-3673-635-0	KNOB (1) ASSY, CONTROL				(Serial No. 2,000,042 and Higher BVM-2010PD ONLY)	
224	4-379-424-01	ESCUTCHEON (B)				(Serial No. 2,000,001 and Higher BVM-2010PMD ONLY)	

6-6. POWER BLOCK

● : BVT3x8 7-685-871-01



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
251	3-675-469-00	SPACER, SOLENOID		261	Δ 1-532-746-11	FUSE, GLASS TUBE 4A/125V (BVM-2010PM/PMD ONLY)	
252	4-379-421-01	HANDLE, DRAWER		265	4-601-466-11	COVER, 3P INLET	
253	*A-1316-048-A	GA BOARD, COMPLETE (BVM-2010PM/PMD ONLY)		266	Δ *1-580-375-11	INLET 3P	
	*A-1316-056-A	GA BOARD, COMPLETE (BVM-2010P/PD ONLY)		267	*4-379-430-03	PANEL, POWER	(Serial No. 2,000,831 and Higher BVM-2010P ONLY) (Serial No. 2,000,004 and Higher BVM-2010PM ONLY) (Serial No. 2,000,040 and Higher BVM-2010PD ONLY) (Serial No. 2,000,001 and Higher BVM-2010PMD ONLY)
254	*1-617-884-11	GB BOARD		268	*2-990-241-01	HOLDER (A), PLUG	(Serial No. 2,000,831 and Higher BVM-2010P ONLY) (Serial No. 2,000,004 and Higher BVM-2010PM ONLY) (Serial No. 2,000,040 and Higher BVM-2010PD ONLY) (Serial No. 2,000,001 and Higher BVM-2010PMD ONLY)
255	*4-379-408-01	INSULATOR (G3)		269	1-533-168-21	HOLDER, FUSE	(Serial No. 2,000,831 and Higher BVM-2010P ONLY) (Serial No. 2,000,004 and Higher BVM-2010PM ONLY) (Serial No. 2,000,040 and Higher BVM-2010PD ONLY) (Serial No. 2,000,001 and Higher BVM-2010PMD ONLY)
256	4-379-410-01	SPACER (G2), POLISHING		261	Δ 1-570-173-22	SWITCH, SLIDE (VOLTAGE CHANGE)	
257	4-379-403-01	SPACER (G1), POLISHING		262	*4-393-031-01	COVER, FUSE HOLDER	(Serial No. 2,000,831 and Higher BVM-2010P ONLY) (Serial No. 2,000,004 and Higher BVM-2010PM ONLY) (Serial No. 2,000,040 and Higher BVM-2010PD ONLY) (Serial No. 2,000,001 and Higher BVM-2010PMD ONLY)
258	*4-347-706-00	HEAT SINK (TR)		263	1-533-167-21	HOLDER, FUSE	
259	*4-371-879-02	COVER, AC SELECT		264	Δ 1-532-203-11	FUSE, TIME-LAG 2A/250V (BVM-2010P/PD ONLY)	
260	*4-379-409-01	NUT, PLATE					

SECTION 7

ELECTRICAL PARTS LIST

BA

NOTE:

The components identified by shading and mark **A** are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
 - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- RESISTORS**
- All resistors are in ohms
 - F : nonflammable

CAPACITORS COILS

- MF : μ F, PF : $\mu\mu$ F • MMH : mH, UH : μ H
- The components identified by **B** in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- * : Selected to yield optimum performance.
- There are some cases the reference number on one board overlaps on the other board. Therefore, when ordering parts by the reference number, please include the board name.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
	*A-1135-355-A	BA BOARD, COMPLETE	*****	C72	1-101-004-00	CERAMIC	0.01MF 50V
				C73	1-101-004-00	CERAMIC	0.01MF 50V
				C74	1-101-004-00	CERAMIC	0.01MF 50V
				C75	1-101-004-00	CERAMIC	0.01MF 50V
				C76	1-101-004-00	CERAMIC	0.01MF 50V
	*4-353-708-00	HOOK, FINGER		C77	1-101-004-00	CERAMIC	0.01MF 50V
	7-682-547-04	SCREW BVT 3X6 (S)		C101	1-102-038-00	CERAMIC	0.001MF 500V
	8-729-119-78	TRANSISTOR 2SC2785-HFE		C102	1-123-356-00	ELECT	10MF 20% 16V
				C103	1-102-951-00	CERAMIC	15PF 5% 50V
				C104	1-123-379-00	ELECT	0.47MF 20% 50V
				C201	1-102-038-00	CERAMIC	0.001MF 500V
				C202	1-123-356-00	ELECT	10MF 20% 16V
				C203	1-102-951-00	CERAMIC	15PF 5% 50V
				C204	1-123-379-00	ELECT	0.47MF 20% 50V
				C301	1-102-038-00	CERAMIC	0.001MF 500V
				C302	1-123-356-00	ELECT	10MF 20% 16V
				C303	1-102-965-00	CERAMIC	39PF 5% 50V
				C305	1-102-947-00	CERAMIC	10PF 0.5PF 50V
				C306	1-102-942-00	CERAMIC	5PF 1PF 50V
				C401	1-102-038-00	CERAMIC	0.001MF 500V
				C402	1-123-356-00	ELECT	10MF 20% 16V
				C403	1-102-951-00	CERAMIC	15PF 5% 50V
				C404	1-123-379-00	ELECT	0.47MF 20% 50V
				C501	1-102-038-00	CERAMIC	0.001MF 500V
				C502	1-123-356-00	ELECT	10MF 20% 16V
				C503	1-102-951-00	CERAMIC	15PF 5% 50V
				C504	1-123-379-00	ELECT	0.47MF 20% 50V
				C601	1-102-038-00	CERAMIC	0.001MF 500V
				C602	1-123-356-00	ELECT	10MF 20% 16V
				C603	1-102-951-00	CERAMIC	15PF 5% 50V
				C604	1-123-379-00	ELECT	0.47MF 20% 50V
				C701	1-102-976-00	CERAMIC	180PF 5% 50V
				C702	1-102-947-00	CERAMIC	10PF 0.5PF 50V
				C703	1-123-356-00	ELECT	10MF 20% 16V
				C704	1-124-910-11	ELECT	47MF 20% 16V
				C705	1-136-153-00	FILM	0.01MF 5% 50V
				C706	1-123-380-00	ELECT	1MF 20% 50V
				C707	1-123-369-00	ELECT	4.7MF 20% 25V
				C708	1-123-356-00	ELECT	10MF 20% 16V
				C709	1-102-973-00	CERAMIC	100PF 5% 50V
				C710	1-130-481-00	MYLAR	0.0068MF 5% 50V
				C711	1-136-155-00	FILM	0.015MF 5% 50V
				C712	1-130-471-00	MYLAR	0.001MF 5% 50V
				C713	1-123-380-00	ELECT	1MF 20% 50V
				C714	1-102-973-00	CERAMIC	100PF 5% 50V
				C715	1-101-361-00	CERAMIC	150PF 5% 50V
				C716	1-136-153-00	FILM	0.01MF 5% 50V
				C717	1-102-973-00	CERAMIC	100PF 5% 50V
							TRIMMER
				CV101	1-141-179-12	CAP, VAR, TRIMMER	
				CV102	1-141-260-21	TRIMAR, CERAMIC	
				CV201	1-141-179-12	CAP, VAR, TRIMMER	
				CV202	1-141-260-21	TRIMAR, CERAMIC	

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Ref.No	Part No.	Description	Remark
CV401	1-141-179-12	CAP, VAR, TRIMMER	
CV402	1-141-260-21	TRIMAR, CERAMIC	
CV501	1-141-179-12	CAP, VAR, TRIMMER	
CV502	1-141-260-21	TRIMAR, CERAMIC	
CV601	1-141-179-12	CAP, VAR, TRIMMER	
CV602	1-141-260-21	TRIMAR, CERAMIC	
<u>DIODE</u>			
D1	8-719-109-63	DIODE RD3.0ES-B2	
D2	8-719-000-06	DIODE MC921	
D4	8-719-000-04	DIODE MC911	
D701	8-719-911-19	DIODE ISS119	
D702	8-719-109-75	DIODE RD4.3ES-B2	
D703	8-719-911-19	DIODE ISS119	
D704	8-719-911-19	DIODE ISS119	
D705	8-719-911-19	DIODE ISS119	
D706	8-719-911-19	DIODE ISS119	
D707	8-719-911-19	DIODE ISS119	
D708	8-719-911-19	DIODE ISS119	
D709	8-719-911-19	DIODE ISS119	
D710	8-719-911-19	DIODE ISS119	
<u>IC</u>			
IC1	8-759-208-94	IC CX-894	
IC2	8-759-208-94	IC CX-894	
IC3	8-759-140-53	IC MC14053BCP	
<u>TRANSISTOR</u>			
Q1	8-729-900-89	TRANSISTOR DTC144ES	
Q2	8-729-384-48	TRANSISTOR 2SA844-E	
Q3	8-729-900-89	TRANSISTOR DTC144ES	
Q4	8-729-900-89	TRANSISTOR DTC144ES	
Q5	8-729-900-89	TRANSISTOR DTC144ES	
Q6	8-729-926-32	TRANSISTOR XDA144ES	
Q101	8-729-266-82	TRANSISTOR 2SC2668-O	
Q102	8-729-266-82	TRANSISTOR 2SC2668-O	
Q103	8-729-266-82	TRANSISTOR 2SC2668-O	
Q104	8-729-384-48	TRANSISTOR 2SA844-E	
Q105	8-729-266-82	TRANSISTOR 2SC2668-O	
Q201	8-729-266-82	TRANSISTOR 2SC2668-O	
Q202	8-729-266-82	TRANSISTOR 2SC2668-O	
Q203	8-729-266-82	TRANSISTOR 2SC2668-O	
Q204	8-729-384-48	TRANSISTOR 2SA844-E	
Q205	8-729-266-82	TRANSISTOR 2SC2668-O	
Q301	8-729-266-82	TRANSISTOR 2SC2668-O	
Q302	8-729-266-82	TRANSISTOR 2SC2668-O	
Q303	8-729-266-82	TRANSISTOR 2SC2668-O	
Q304	8-729-384-48	TRANSISTOR 2SA844-E	
Q305	8-729-266-82	TRANSISTOR 2SC2668-O	
Q401	8-729-266-82	TRANSISTOR 2SC2668-O	
Q402	8-729-266-82	TRANSISTOR 2SC2668-O	
Q403	8-729-266-82	TRANSISTOR 2SC2668-O	
Q404	8-729-384-48	TRANSISTOR 2SA844-E	
Q405	8-729-266-82	TRANSISTOR 2SC2668-O	
Q501	8-729-266-82	TRANSISTOR 2SC2668-O	
Q502	8-729-266-82	TRANSISTOR 2SC2668-O	
Q503	8-729-266-82	TRANSISTOR 2SC2668-O	
Q504	8-729-384-48	TRANSISTOR 2SA844-E	
Q505	8-729-266-82	TRANSISTOR 2SC2668-O	
Q601	8-729-266-82	TRANSISTOR 2SC2668-O	
Q602	8-729-266-82	TRANSISTOR 2SC2668-O	
Q603	8-729-266-82	TRANSISTOR 2SC2668-O	
Q604	8-729-384-48	TRANSISTOR 2SA844-E	
Q605	8-729-266-82	TRANSISTOR 2SC2668-O	
Q701	8-729-119-76	TRANSISTOR 2SA1175-HFE	

Ref.No	Part No.	Description	Remark
Q702	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q703	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q704	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q705	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q706	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q707	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q708	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q709	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q710	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q711	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q712	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q713	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q714	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q715	8-729-800-10	TRANSISTOR 2SC3068	
Q716	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q717	8-729-119-76	TRANSISTOR 2SA1175-HFE	
<u>RESISTOR</u>			
R1	1-249-405-11	CARBON	100 5% 1/4W
R2	1-249-405-11	CARBON	100 5% 1/4W
R3	1-249-405-11	CARBON	100 5% 1/4W
R4	1-249-437-11	CARBON	47K 5% 1/4W
R5	1-249-405-11	CARBON	100 5% 1/4W
R6	1-249-432-11	CARBON	18K 5% 1/4W
R7	1-249-434-11	CARBON	27K 5% 1/4W
R8	1-249-422-11	CARBON	2.7K 5% 1/4W
R9	1-249-405-11	CARBON	100 5% 1/4W
R10	1-249-405-11	CARBON	100 5% 1/4W
R11	1-249-433-11	CARBON	22K 5% 1/4W
R12	1-249-405-11	CARBON	100 5% 1/4W
R13	1-249-437-11	CARBON	47K 5% 1/4W
R14	1-249-429-11	CARBON	10K 5% 1/4W
R101	1-249-417-11	CARBON	1K 5% 1/4W
R102	1-249-418-11	CARBON	1.2K 5% 1/4W
R103	1-249-425-11	CARBON	4.7K 5% 1/4W
R104	1-249-405-11	CARBON	100 5% 1/4W
R105	1-215-437-00	METAL	4.7K 1% 1/6W
R106	1-249-430-11	CARBON	12K 5% 1/4W
R107	1-249-433-11	CARBON	22K 5% 1/4W
R108	1-215-427-00	METAL	1.8K 1% 1/6W
R109	1-215-415-00	METAL	560 1% 1/6W
R110	1-249-405-11	CARBON	100 5% 1/4W
R111	1-215-431-00	METAL	2.7K 1% 1/6W
R112	1-249-421-11	CARBON	2.2K 5% 1/4W
R113	1-249-393-11	CARBON	10 5% 1/4W
R201	1-249-417-11	CARBON	1K 5% 1/4W
R202	1-249-418-11	CARBON	1.2K 5% 1/4W
R203	1-249-425-11	CARBON	4.7K 5% 1/4W
R204	1-249-405-11	CARBON	100 5% 1/4W
R205	1-215-437-00	METAL	4.7K 1% 1/6W
R206	1-249-430-11	CARBON	12K 5% 1/4W
R207	1-249-433-11	CARBON	22K 5% 1/4W
R208	1-215-427-00	METAL	1.8K 1% 1/6W
R209	1-215-415-00	METAL	560 1% 1/6W
R210	1-249-405-11	CARBON	100 5% 1/4W
R211	1-215-431-00	METAL	2.7K 1% 1/6W
R212	1-249-421-11	CARBON	2.2K 5% 1/4W
R213	1-249-393-11	CARBON	10 5% 1/4W
R301	1-249-417-11	CARBON	1K 5% 1/4W
R302	1-249-418-11	CARBON	1.2K 5% 1/4W
R303	1-249-426-11	CARBON	5.6K 5% 1/4W
R304	1-249-405-11	CARBON	100 5% 1/4W
R305	1-249-426-11	CARBON	5.6K 5% 1/4W
R306	1-249-430-11	CARBON	12K 5% 1/4W
R307	1-249-432-11	CARBON	18K 5% 1/4W

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark				
R308	1-249-421-11	CARBON	2.2K 5% 1/4W	R721	1-249-438-11	CARBON	56K 5% 1/4W				
R309	1-249-417-11	CARBON	1K 5% 1/4W	R722	1-249-441-11	CARBON	100K 5% 1/4W				
R310	1-249-405-11	CARBON	100 5% 1/4W	R723	1-249-437-11	CARBON	47K 5% 1/4W				
R311	1-249-417-11	CARBON	1K 5% 1/4W	R724	1-249-429-11	CARBON	10K 5% 1/4W				
R312	1-249-421-11	CARBON	2.2K 5% 1/4W	R725	1-249-438-11	CARBON	56K 5% 1/4W				
R313	1-249-393-11	CARBON	10 5% 1/4W	R726	1-247-895-00	CARBON	470K 5% 1/4W				
R401	1-249-417-11	CARBON	1K 5% 1/4W	R727	1-249-425-11	CARBON	4.7K 5% 1/4W				
R402	1-249-418-11	CARBON	1.2K 5% 1/4W	R728	1-249-435-11	CARBON	33K 5% 1/4W				
R403	1-249-425-11	CARBON	4.7K 5% 1/4W	R729	1-249-423-11	CARBON	3.3K 5% 1/4W				
R404	1-249-405-11	CARBON	100 5% 1/4W	R730	1-249-421-11	CARBON	2.2K 5% 1/4W				
R405	1-215-437-00	METAL	4.7K 1% 1/6W	R731	1-249-422-11	CARBON	2.7K 5% 1/4W				
R406	1-249-430-11	CARBON	12K 5% 1/4W	R732	1-249-422-11	CARBON	2.7K 5% 1/4W				
R407	1-249-433-11	CARBON	22K 5% 1/4W	R733	1-249-421-11	CARBON	2.2K 5% 1/4W				
R408	1-215-427-00	METAL	1.8K 1% 1/6W	R734	1-249-421-11	CARBON	2.2K 5% 1/4W				
R409	1-215-415-00	METAL	560 1% 1/6W	R735	1-249-421-11	CARBON	2.2K 5% 1/4W				
R410	1-249-405-11	CARBON	100 5% 1/4W	R736	1-249-425-11	CARBON	4.7K 5% 1/4W				
R411	1-215-431-00	METAL	2.7K 1% 1/6W	R737	1-249-405-11	CARBON	100 5% 1/4W				
R412	1-249-421-11	CARBON	2.2K 5% 1/4W	R738	1-249-441-11	CARBON	100K 5% 1/4W				
R413	1-249-393-11	CARBON	10 5% 1/4W	R739	1-249-433-11	CARBON	22K 5% 1/4W				
R501	1-249-417-11	CARBON	1K 5% 1/4W	R740	1-249-417-11	CARBON	1K 5% 1/4W				
R502	1-249-418-11	CARBON	1.2K 5% 1/4W	R741	1-202-473-00	SOLID	5.6M 5% 1/4W				
R503	1-249-425-11	CARBON	4.7K 5% 1/4W	<u>VARIABLE RESISTOR</u>							
R504	1-249-405-11	CARBON	100 5% 1/4W	RV101	1-237-514-21	RES, ADJ, CERMET	500				
R505	1-215-437-00	METAL	4.7K 1% 1/6W	RV201	1-237-514-21	RES, ADJ, CERMET	500				
R506	1-249-430-11	CARBON	12K 5% 1/4W	RV401	1-237-514-21	RES, ADJ, CERMET	500				
R507	1-249-433-11	CARBON	22K 5% 1/4W	RV501	1-237-514-21	RES, ADJ, CERMET	500				
R508	1-215-427-00	METAL	1.8K 1% 1/6W	RV601	1-237-514-21	RES, ADJ, CERMET	500				
R509	1-215-415-00	METAL	560 1% 1/6W	*****							
R510	1-249-405-11	CARBON	100 5% 1/4W	*A-1135-391-A BD BOARD, COMPLETE (BVM-2010P/PD ONLY)							
R511	1-215-431-00	METAL	2.7K 1% 1/6W	*****							
R512	1-249-421-11	CARBON	2.2K 5% 1/4W	*A-1135-424-A BM BOARD, COMPLETE (BVM-2010PM/PMD ONLY)							
R513	1-249-393-11	CARBON	10 5% 1/4W	*****							
R601	1-249-417-11	CARBON	1K 5% 1/4W	*****							
R602	1-249-418-11	CARBON	1.2K 5% 1/4W	*****							
R603	1-249-425-11	CARBON	4.7K 5% 1/4W	*****							
R604	1-249-405-11	CARBON	100 5% 1/4W	*****							
R605	1-215-437-00	METAL	4.7K 1% 1/6W	*4-353-708-00 HOOK, FINGER							
R606	1-249-430-11	CARBON	12K 5% 1/4W	7-682-547-04 SCREW BT7 3X6 (S)							
R607	1-249-433-11	CARBON	22K 5% 1/4W	7-682-950-01 SCREW PSW 3X12							
R608	1-215-427-00	METAL	1.8K 1% 1/6W	*****							
R609	1-215-415-00	METAL	560 1% 1/6W	CAPACITOR							
R610	1-249-405-11	CARBON	100 5% 1/4W	C1	1-102-947-00	CERAMIC	10PF	0.5PF	50V		
R611	1-215-431-00	METAL	2.7K 1% 1/6W	C1	1-102-951-00	CERAMIC	15PF	5%	50V		
R612	1-249-421-11	CARBON	2.2K 5% 1/4W	C2	1-102-947-00	CERAMIC	10PF	0.5PF	50V		
R613	1-249-393-11	CARBON	10 5% 1/4W	C2	1-102-951-00	CERAMIC	15PF	5%	50V		
R701	1-249-433-11	CARBON	22K 5% 1/4W	C3	1-102-963-00	CERAMIC	33PF	5%	50V		
R702	1-249-438-11	CARBON	56K 5% 1/4W	(BVM-2010P/PD ONLY)							
R703	1-249-417-11	CARBON	1K 5% 1/4W	C4 1-101-880-00 CERAMIC 47PF 5% 50V							
R704	1-249-417-11	CARBON	1K 5% 1/4W	C4 1-101-361-00 CERAMIC 39PF 5% 50V							
R705	1-249-424-11	CARBON	3.9K 5% 1/4W	C6 1-101-888-00 CERAMIC 68PF 5% 50V							
R706	1-249-417-11	CARBON	1K 5% 1/4W	C6 1-101-884-00 CERAMIC 56PF 5% 50V							
R707	1-249-429-11	CARBON	10K 5% 1/4W	C7 1-102-963-00 CERAMIC 33PF 5% 50V							
R708	1-249-421-11	CARBON	2.2K 5% 1/4W	C7 1-101-361-00 CERAMIC 39PF 5% 50V							
R709	1-249-419-11	CARBON	1.5K 5% 1/4W	C8 1-102-943-00 CERAMIC 6PF 0.5PF 50V							
R710	1-249-418-11	CARBON	1.2K 5% 1/4W	C8 1-102-935-00 CERAMIC 2PF 0.25PF 50V							
R711	1-249-434-11	CARBON	27K 5% 1/4W	C9 1-123-356-00 ELECT 10MF 20% 16V							
R712	1-249-433-11	CARBON	22K 5% 1/4W	C10 1-123-356-00 ELECT 10MF 20% 16V							
R713	1-249-422-11	CARBON	2.7K 5% 1/4W								
R714	1-249-427-11	CARBON	6.8K 5% 1/4W								
R715	1-249-433-11	CARBON	22K 5% 1/4W								
R716	1-249-422-11	CARBON	2.7K 5% 1/4W								
R717	1-249-425-11	CARBON	4.7K 5% 1/4W								
R718	1-249-410-11	CARBON	270 5% 1/4W								
R719	1-249-414-11	CARBON	560 5% 1/4W								
R720	1-247-850-11	CARBON	6.2K 5% 1/4W								





BD **BM**

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark		
D5	8-719-100-54	DIODE RD9.1EB2		Q20	8-729-119-76	TRANSISTOR 2SA1175-HFE (BVM-2010P/PD ONLY)			
D6	8-719-911-19	DIODE ISS119		Q20	8-729-384-48	TRANSISTOR 2SA844 (BVM-2010PM/PMD ONLY)			
D10	8-719-920-95	DIODE 1T25-0		Q21	8-729-119-78	TRANSISTOR 2SC2785-HFE			
D11	8-719-911-19	DIODE ISS119		Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE			
D12	8-719-100-66	DIODE RD12EB2		Q23	8-729-384-48	TRANSISTOR 2SA844			
D13	8-719-100-66	DIODE RD12EB2		Q24	8-729-119-78	TRANSISTOR 2SC2785-HFE			
D15	8-719-911-19	DIODE ISS119 (BVM-2010PM/PMD ONLY)		Q25	8-729-800-10	TRANSISTOR 2SC3068			
D16	8-719-911-19	DIODE ISS119		Q26	8-729-600-19	TRANSISTOR 2SK381-A			
D201	8-719-911-19	DIODE ISS119		Q28	8-729-119-76	TRANSISTOR 2SA1175-HFE (BVM-2010P/PD ONLY)			
D202	8-719-911-19	DIODE ISS119		Q28	8-729-384-48	TRANSISTOR 2SA844 (BVM-2010PM/PMD ONLY)			
IC									
IC1	8-759-204-21	IC TA7193P		Q29	8-729-119-78	TRANSISTOR 2SC2785-HFE			
IC2	8-759-800-81	IC LA7016		Q30	8-729-119-78	TRANSISTOR 2SC2785-HFE			
IC3	8-759-246-15	IC TL8608AP		Q31	8-729-384-48	TRANSISTOR 2SA844			
*1-526-654-00	SOCKET, IC (DP) 16P (IC3)			Q32	8-729-119-78	TRANSISTOR 2SC2785-HFE			
IC4	8-759-246-15	IC TL8608AP		Q33	8-729-800-10	TRANSISTOR 2SC3068			
*1-526-654-00	SOCKET, IC (DP) 16P (IC4)			Q34	8-729-119-78	TRANSISTOR 2SC2785-HFE			
IC5	8-759-140-53	IC MC14053BCP		Q35	8-729-119-78	TRANSISTOR 2SC2785-HFE			
IC6	8-759-800-81	IC LA7016		Q36	8-729-119-78	TRANSISTOR 2SC2785-HFE			
IC7	8-759-945-58	IC RC4558P		Q38	8-729-119-78	TRANSISTOR 2SC2785-HFE			
IC8	8-759-945-58	IC RC4558P		Q101	8-729-140-97	TRANSISTOR 2SB734-34			
COIL									
L1	1-408-533-00	COIL, VARIABLE		Q102	8-729-320-62	TRANSISTOR 2SD789-34 (BVM-2010P/PD ONLY)			
L2	1-408-532-00	COIL, VARIABLE (BVM-2010P/PD ONLY)		Q102	8-729-378-93	TRANSISTOR 2SD789-5 (BVM-2010PM/PMD ONLY)			
L2	1-408-514-00	COIL, VARIABLE (BVM-2010PM/PMD ONLY)		Q103	8-729-926-40	TRANSISTOR XDA124ES			
L3	1-408-514-00	COIL (VARIABLE) (BVM-2010P/PD ONLY)		Q104	8-729-926-40	TRANSISTOR XDA124ES			
L3	1-408-533-00	COIL (VARIABLE) (BVM-2010PM/PMD ONLY)		RESISTOR					
L4	1-408-421-00	INDUCTOR 100UH		R1	1-249-428-11	CARBON 8.2K 5% 1/4W			
L5	1-408-429-00	INDUCTOR 470UH		R2	1-249-429-11	CARBON 10K 5% 1/4W			
L6	1-408-429-00	INDUCTOR 470UH		R3	1-249-422-11	CARBON 2.7K 5% 1/4W			
L8	1-408-421-00	INDUCTOR 100UH		R4	1-215-425-00	METAL 1.5K 1% 1/4W (BVM-2010P/PD ONLY)			
L101	1-408-421-00	INDUCTOR 100UH		R4	1-215-421-00	METAL 1K 1% 1/6W (BVM-2010PM/PMD ONLY)			
L102	1-408-421-00	INDUCTOR 100UH		R5	1-215-395-00	METAL 82 (BVM-2010P/PD ONLY) 1% 1/6W			
TRANSISTOR									
Q1	8-729-119-78	TRANSISTOR 2SC2785-HFE		R5	1-215-398-00	METAL 110 (BVM-2010PM/PMD ONLY) 1% 1/6W			
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE		R6	1-215-421-00	METAL 1K 1% 1/4W			
Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE		R7	1-215-421-00	METAL 1K 1% 1/4W			
Q4	8-729-800-10	TRANSISTOR 2SC3068		R8	1-215-423-00	METAL 1.2K 1% 1/6W (BVM-2010P/PD ONLY)			
Q5	8-729-800-10	TRANSISTOR 2SC3068		R8	1-215-427-00	METAL 1.8K 1% 1/6W (BVM-2010PM/PMD ONLY)			
Q6	8-729-384-48	TRANSISTOR 2SA844		R9	1-215-421-00	METAL 1K 1% 1/6W			
Q7	8-729-119-78	TRANSISTOR 2SC2785-HFE		R10	1-215-421-00	METAL 1K 1% 1/6W			
Q8	8-729-384-48	TRANSISTOR 2SA844		R11	1-215-391-00	METAL 56 (BVM-2010P/PD ONLY) 1% 1/6W			
Q9	8-729-119-78	TRANSISTOR 2SC2785-HFE		R11	1-215-400-00	METAL 130 (BVM-2010PM/PMD ONLY) 1% 1/6W			
Q10	8-729-119-76	TRANSISTOR 2SA1175-HFE (BVM-2010P/PD ONLY)		R12	1-215-427-00	METAL 1.8K 1% 1/6W (BVM-2010P/PD ONLY)			
Q10	8-729-384-48	TRANSISTOR 2SA844 (BVM-2010PM/PMD ONLY)		R12	1-215-429-00	METAL 2.2K 1% 1/6W (BVM-2010PM/PMD ONLY)			
Q11	8-729-119-76	TRANSISTOR 2SA1175-HFE (BVM-2010P/PD ONLY)		R13	1-249-425-11	CARBON 4.7K 5% 1/4W			
Q11	8-729-384-48	TRANSISTOR 2SA844 (BVM-2010PM/PMD ONLY)		R14	1-249-429-11	CARBON 10K 5% 1/4W			
Q12	8-729-119-78	TRANSISTOR 2SC2785-HFE		R15	1-249-429-11	CARBON 10K 5% 1/4W			
Q13	8-729-119-78	TRANSISTOR 2SC2785-HFE		R17	1-249-433-11	CARBON 22K 5% 1/4W			
Q14	8-729-119-78	TRANSISTOR 2SC2785-HFE		R18	1-215-425-00	METAL 1.5K 1% 1/4W			
Q15	8-729-119-78	TRANSISTOR 2SC2785-HFE		R19	1-215-425-00	METAL 1.5K 1% 1/4W			
Q16	8-729-119-78	TRANSISTOR 2SC2785-HFE		R20	1-215-425-00	METAL 1.5K 1% 1/4W			
Q17	8-729-119-78	TRANSISTOR 2SC2785-HFE		R21	1-215-425-00	METAL 1.5K 1% 1/4W			
Q18	8-729-600-19	TRANSISTOR 2SK381-A		R22	1-249-405-11	CARBON 100 5% 1/4W			

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Ref.No	Part No.	Description			Remark	Ref.No	Part No.	Description			Remark
R23	1-215-441-00	METAL	6.8K	1%	1/4W	R60	1-215-420-00	METAL	910	1%	1/6W
R23	1-215-439-00	METAL	5.6K	1%	1/6W	R61	1-215-420-00	METAL	910	1%	1/6W
R24	1-215-469-00	METAL	100K	1%	1/6W	R62	1-249-415-11	CARBON	680	5%	1/4W
R25	1-249-427-11	CARBON	6.8K	5%	1/4W	R63	1-249-422-11	CARBON	2.7K	5%	1/4W
R25	1-249-425-11	CARBON	4.7K	5%	1/4W	R64	1-215-477-00	METAL	220K	1%	1/6W
		(BVM-2010P/PD ONLY)						(BVM-2010P/PD ONLY)			
R26	1-249-415-11	CARBON	680	5%	1/4W	R64	1-249-417-11	CARBON	1K	5%	1/4W
R26	1-249-418-11	CARBON	1.2	5%	1/4W	R65	1-215-435-00	METAL	3.9K	1%	1/6W
R27	1-249-415-11	CARBON	680	5%	1/4W	R65	1-215-429-00	METAL	2.2K	1%	1/6W
R28	1-249-420-11	CARBON	1.8K	5%	1/4W	R66	1-249-405-11	CARBON	100	5%	1/4W
R28	1-249-423-11	CARBON	3.3K	5%	1/4W	R70	1-247-903-00	CARBON	1M	5%	1/4W
R29	1-249-422-11	CARBON	2.7K	5%	1/4W	R71	1-249-429-11	CARBON	10K	5%	1/4W
R30	1-249-405-11	CARBON	100	5%	1/4W	R72	1-249-429-11	CARBON	10K	5%	1/4W
R31	1-247-903-00	CARBON	1M	5%	1/4W	R73	1-249-429-11	CARBON	10K	5%	1/4W
R32	1-249-429-11	CARBON	10K	5%	1/4W	R74	1-249-417-11	CARBON	1K	5%	1/4W
R34	1-215-407-00	METAL	270	1%	1/4W	R75	1-249-427-11	CARBON	6.8K	5%	1/4W
		(BVM-2010P/PD ONLY)				R76	1-249-427-11	CARBON	6.8K	5%	1/4W
R34	1-215-417-00	METAL	680	1%	1/6W	R77	1-249-425-11	CARBON	4.7K	5%	1/4W
R35	1-215-407-00	METAL	270	1%	1/4W	R78	1-215-424-00	METAL	1.3K	1%	1/6W
R35	1-215-417-00	METAL	680	1%	1/6W	R79	1-215-419-00	METAL	820	1%	1/6W
R36	1-215-413-00	METAL	470	1%	1/4W	R80	1-215-425-00	METAL	1.5K	1%	1/6W
R37	1-215-443-00	METAL	8.2K	1%	1/4W	R81	1-249-422-11	CARBON	2.7K	5%	1/4W
R38	1-249-441-11	CARBON	100K	5%	1/4W	R82	1-249-425-11	CARBON	4.7K	5%	1/4W
R39	1-215-425-00	METAL	1.5K	1%	1/6W	R83	1-249-435-11	CARBON	33K	5%	1/4W
R39	1-215-429-00	METAL	2.2K	1%	1/6W	R84	1-249-435-11	CARBON	33K	5%	1/4W
R40	1-215-421-00	METAL	1K	1%	1/6W	R85	1-247-903-00	CARBON	1M	5%	1/4W
R40	1-215-417-00	CARBON	1K	1%	1/4W	R86	1-249-429-11	CARBON	10K	5%	1/4W
		(BVM-2010P/PMD ONLY)				R87	1-249-429-11	CARBON	10K	5%	1/4W
R41	1-215-429-00	METAL	2.2K	1%	1/6W	R88	1-249-429-11	CARBON	10K	5%	1/4W
R41	1-215-421-11	CARBON	2.2K	5%	1/4W	R89	1-249-417-11	CARBON	1K	5%	1/4W
R42	1-215-445-00	METAL	10K	1%	1/6W	R90	1-249-427-11	CARBON	6.8K	5%	1/4W
R42	1-249-429-11	CARBON	10K	1%	1/4W	R91	1-249-427-11	CARBON	6.8K	5%	1/4W
R43	1-215-421-00	METAL	1K	1%	1/6W	R92	1-249-425-11	CARBON	4.7K	5%	1/4W
R43	1-249-417-11	CARBON	1K	1%	1/4W	R93	1-215-424-00	METAL	1.3K	1%	1/6W
R44	1-249-433-11	CARBON	22K	5%	1/4W	R94	1-215-419-00	METAL	820	1%	1/6W
R45	1-249-429-11	CARBON	10K	5%	1/4W	R95	1-215-425-00	METAL	1.5K	1%	1/6W
R46	1-249-429-11	CARBON	10K	5%	1/4W	R96	1-249-422-11	CARBON	2.7K	5%	1/4W
R47	1-249-441-11	CARBON	100K	5%	1/4W	R97	1-249-425-11	CARBON	4.7K	5%	1/4W
R48	1-249-425-11	CARBON	4.7K	5%	1/4W	R98	1-249-435-11	CARBON	33K	5%	1/4W
R54	1-249-422-11	CARBON	2.7K	5%	1/4W	R99	1-249-435-11	CARBON	33K	5%	1/4W
R55	1-215-418-00	METAL	750	1%	1/6W	R100	1-215-438-00	METAL	5.1K	1%	1/6W
R55	1-215-420-00	METAL	910	1%	1/6W	R101	1-215-438-00	METAL	5.1K	1%	1/6W
R56	1-215-420-00	METAL	910	1%	1/6W	R102	1-215-438-00	METAL	5.1K	1%	1/6W
R57	1-249-415-11	CARBON	680	5%	1/4W	R103	1-215-438-00	METAL	5.1K	1%	1/6W
R58	1-249-422-11	CARBON	2.7K	5%	1/4W	R104	1-249-437-11	CARBON	47K	5%	1/4W
R59	1-249-422-11	CARBON	2.7K	5%	1/4W	R105	1-249-438-11	CARBON	55K	5%	1/4W
R60	1-215-418-00	METAL	750	1%	1/6W	R106	1-249-417-11	CARBON	1K	5%	1/4W
		(BVM-2010P/PD ONLY)				R107	1-249-417-11	CARBON	1K	5%	1/4W
						R108	1-249-417-11	CARBON	1K	5%	1/4W
						R109	1-249-417-11	CARBON	1K	5%	1/4W
						R110	1-249-417-11	CARBON	1K	5%	1/4W
						R115	1-215-438-00	METAL	5.1K	1%	1/6W
						R115	1-215-429-00	METAL	2.2K	1%	1/6W
						R116	1-215-438-00	METAL	5.1K	1%	1/6W
						R116	1-215-429-00	METAL	2.2K	1%	1/6W
						R120	1-249-429-11	CARBON	10K	5%	1/4W
						R121	1-249-429-11	CARBON	10K	5%	1/4W
						R130	1-215-477-00	METAL	220K	1%	1/6W
								(BVM-2010P/PD ONLY)			

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R130	1-215-485-00	METAL (BVM-2010PM/PMD ONLY)	470K 1% 1/6W	* A-1135-358-A	BG BOARD, COMPLETE	*****	
R150	1-249-441-11	CARBON	100K 5% 1/4W				
R201	1-249-423-11	CARBON	3.3K 5% 1/4W				
R202	1-249-423-11	CARBON	3.3K 5% 1/4W	* 4-353-708-00	HOOK, FINGER		
R203	1-249-422-11	CARBON	2.7K 5% 1/4W	7-682-547-04	SCREW BVTT 3X6 (S)		
R204	1-249-423-11	CARBON	3.3K 5% 1/4W				
R220	1-249-441-11	CARBON	100K 5% 1/4W				
R221	1-249-433-11	CARBON	22K 5% 1/4W				
R222	1-249-433-11	CARBON	22K 5% 1/4W				
R250	1-215-415-00	METAL	560 1% 1/6W				
R251	1-215-415-00	METAL	560 1% 1/6W				
R252	1-215-421-00	METAL	1K 1% 1/6W				
R254	1-249-429-11	CARBON	10K 5% 1/4W				
R255	1-249-441-11	CARBON	100K 5% 1/4W				
R259	1-215-421-00	METAL	1K 1% 1/6W				
R301	1-215-469-00	METAL	100K 1% 1/6W				
R302	1-215-491-00	METAL	820K 1% 1/6W				
R303	1-249-418-11	CARBON	1.2K 5% 1/4W				
R305	1-249-431-11	CARBON	15K 5% 1/4W				
R306	1-249-428-11	CARBON	8.2K 5% 1/4W				
R307	1-249-417-11	CARBON	1K 5% 1/4W				
R308	1-249-417-11	CARBON	1K 5% 1/4W				
R310	1-249-422-11	CARBON	2.7K 5% 1/4W				
R314	1-215-417-00	METAL	680 1% 1/6W				
R315	1-249-422-11	CARBON	2.7K 5% 1/4W				
R316	1-249-413-11	CARBON	470 5% 1/4W				
R317	1-249-413-11	CARBON	470 5% 1/4W				
R320	1-215-472-00	METAL (BVM-2010P/PD ONLY)	130K 1% 1/6W				
R320	1-215-482-00	METAL (BVM-2010PM/PMD ONLY)	360K 1% 1/6W				
R353	1-249-432-11	CARBON	18K 5% 1/4W				
R354	1-249-432-11	CARBON	18K 5% 1/4W				
R400	1-215-429-00	METAL	2.2K 1% 1/6W				
<u>VARIABLE RESISTOR</u>							
RV1	1-237-515-21	RES, ADJ, CERMET 1K					
RV2	1-237-499-21	RES, ADJ, CERMET 500					
RV3	1-237-501-21	RES, ADJ, CERMET 2K					
RV4	1-237-501-21	RES, ADJ, CERMET 2K					
RV5	1-237-517-21	RES, ADJ, CERMET 5K					
RV6	1-237-517-21	RES, ADJ, CERMET 5K					
RV7	1-237-504-21	RES, ADJ, CERMET 20K					
RV8	1-237-504-21	RES, ADJ, CERMET 20K					
RV9	1-237-517-21	RES, ADJ, CERMET 5K					
RV10	1-237-517-21	RES, ADJ, CERMET 5K					
<u>THERMISTOR</u>							
TH1	1-800-202-XX	THERMISTOR S-10K (BVM-2010PM/PMD ONLY)					
<u>CRYSTAL</u>							
X1	1-567-504-11	OSCILLATOR, CRYSTAL 4.43 MHz (BVM-2010P/PD ONLY)					
X1	1-527-794-00	VIBRATOR, CRYSTAL 3.58 MHz (BVM-2010PM/PMD ONLY)					
X2	1-567-409-11	VIBRATOR, CRYSTAL 10.64 MHz (BVM-2010P/PD ONLY)					
X2	1-567-416-11	VIBRATOR, CRYSTAL 10.717 MHz (BVM-2010PM/PMD ONLY)					

<u>TRIMMER</u>							
CV2	1-141-181-11	CAP, TRIMMER					
CV3	1-141-171-00	CAP, TRIMMER 20P					

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
<u>DIODE</u>							
D1	8-719-911-19	DIODE 1SS119		Q37	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D2	8-719-911-19	DIODE 1SS119		Q38	8-729-600-19	TRANSISTOR 2SK381-A	
D3	8-719-016-42	DIODE MC932		Q39	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D4	8-719-016-42	DIODE MC932		Q40	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D5	8-719-911-19	DIODE 1SS119		Q41	8-729-384-48	TRANSISTOR 2SA844-E	
D6	8-719-911-19	DIODE 1SS119		Q42	8-729-384-48	TRANSISTOR 2SA844-E	
D7	8-719-911-19	DIODE 1SS119		Q43	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D8	8-719-109-93	DIODE RD6.2ES-B2		Q44	8-729-384-48	TRANSISTOR 2SA844-E	
D11	8-719-911-19	DIODE 1SS119		Q45	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D12	8-719-911-19	DIODE 1SS119		Q49	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D13	8-719-911-19	DIODE 1SS119		Q50	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D14	8-719-911-19	DIODE 1SS119		Q51	8-729-926-40	TRANSISTOR XDA124ES	
D16	8-719-911-19	DIODE 1SS119		Q52	8-729-926-40	TRANSISTOR XDA124ES	
D17	8-719-911-19	DIODE 1SS119		Q53	8-729-926-40	TRANSISTOR XDA124ES	
<u>DELAY LINE</u>							
DL1	1-415-477-11	DELAY LINE		Q55	8-729-600-19	TRANSISTOR 2SK381-A	
DL2	1-415-458-11	DELAY LINE		Q56	8-729-926-40	TRANSISTOR XDA124ES	
DL3	1-415-458-11	DELAY LINE		Q57	8-729-926-40	TRANSISTOR XDA124ES	
DL4	1-415-458-11	DELAY LINE		Q58	8-729-926-40	TRANSISTOR XDA124ES	
<u>IC</u>							
IC1	8-759-800-81	IC LA7016		Q59	8-729-119-78	TRANSISTOR 2SC2785-HFE	
IC2	8-766-001-49	TRANSISTOR TX-429M		Q60	8-729-600-19	TRANSISTOR 2SK381-A	
IC3	8-759-945-58	IC RC4558P		Q71	8-729-384-48	TRANSISTOR 2SA844-E	
IC4	8-757-182-14	IC CX-718D-1		Q72	8-729-119-78	TRANSISTOR 2SC2785-HFE	
IC5	8-759-140-53	IC MC14053BCP		Q73	8-729-119-78	TRANSISTOR 2SC2785-HFE	
IC6	8-759-140-53	IC MC14053BCP		Q74	8-729-384-48	TRANSISTOR 2SA844-E	
IC7	8-759-990-82	IC TL082CP		Q75	8-729-800-10	TRANSISTOR 2SC3068	
IC8	8-759-990-82	IC TL082CP		Q76	8-729-926-40	TRANSISTOR XDA124ES	
IC9	8-759-990-82	IC TL082CP		Q77	8-729-926-40	TRANSISTOR XDA124ES	
<u>COIL</u>							
L2	1-408-408-00	INDUCTOR	8.2UH	Q78	8-729-900-89	TRANSISTOR DTC144ES	
L3	1-408-413-00	INDUCTOR	22UH	Q81	8-729-384-48	TRANSISTOR 2SA844-E	
L4	1-408-413-00	INDUCTOR	22UH	Q82	8-729-119-78	TRANSISTOR 2SC2785-HFE	
<u>TRANSISTOR</u>							
Q1	8-729-119-78	TRANSISTOR 2SC2785-HFE		<u>RESISTOR</u>			
Q5	8-729-119-78	TRANSISTOR 2SC2785-HFE		R1	1-249-405-11	CARBON	100 5% 1/4W
Q7	8-729-119-78	TRANSISTOR 2SC2785-HFE		R2	1-215-396-00	METAL	91 1% 1/6W
Q8	8-729-119-78	TRANSISTOR 2SC2785-HFE		R3	1-215-431-00	METAL	2.7K 1% 1/6W
Q9	8-729-119-78	TRANSISTOR 2SC2785-HFE		R4	1-249-419-11	CARBON	1.5K 5% 1/4W
Q10	8-729-384-48	TRANSISTOR 2SA844-E		R6	1-249-405-11	CARBON	100 5% 1/4W
Q11	8-729-119-78	TRANSISTOR 2SC2785-HFE		R7	1-249-405-11	CARBON	100 5% 1/4W
Q12	8-729-119-78	TRANSISTOR 2SC2785-HFE		R8	1-249-429-11	CARBON	10K 5% 1/4W
Q13	8-729-119-78	TRANSISTOR 2SC2785-HFE		R10	1-247-830-11	CARBON	910 5% 1/4W
Q14	8-729-800-10	TRANSISTOR 2SC3068		R11	1-249-417-11	CARBON	1K 5% 1/4W
Q21	8-729-384-48	TRANSISTOR 2SA844-E		R12	1-249-417-11	CARBON	1K 5% 1/4W
Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE		R13	1-215-462-00	METAL	51K 1% 1/6W
Q23	8-729-119-78	TRANSISTOR 2SC2785-HFE		R14	1-249-426-11	CARBON	5.6K 5% 1/4W
Q24	8-729-600-19	TRANSISTOR 2SK381-A		R15	1-247-903-00	CARBON	1M 5% 1/4W
Q25	8-729-384-48	TRANSISTOR 2SA844-E		R16	1-215-477-00	METAL	220K 1% 1/6W
Q26	8-729-119-78	TRANSISTOR 2SC2785-HFE		R17	1-249-429-11	CARBON	10K 5% 1/4W
Q27	8-729-119-78	TRANSISTOR 2SC2785-HFE		R18	1-249-429-11	CARBON	10K 5% 1/4W
Q28	8-729-600-19	TRANSISTOR 2SK381-A		R19	1-249-417-11	CARBON	1K 5% 1/4W
Q29	8-729-119-78	TRANSISTOR 2SC2785-HFE		R20	1-215-421-00	METAL	1K 1% 1/6W
Q30	8-729-119-78	TRANSISTOR 2SC2785-HFE		R21	1-215-421-00	METAL	1K 1% 1/6W
Q31	8-729-384-48	TRANSISTOR 2SA844-E		R22	1-249-441-11	CARBON	100K 5% 1/4W
Q32	8-729-119-78	TRANSISTOR 2SC2785-HFE		R23	1-215-409-00	METAL	330 1% 1/6W
Q33	8-729-119-78	TRANSISTOR 2SC2785-HFE		R24	1-215-380-00	METAL	20 1% 1/6W
Q34	8-729-600-19	TRANSISTOR 2SK381-A		R25	1-215-380-00	METAL	20 1% 1/6W
Q35	8-729-384-48	TRANSISTOR 2SA844-E		R26	1-215-409-00	METAL	330 1% 1/6W
Q36	8-729-119-78	TRANSISTOR 2SC2785-HFE		R27	1-249-429-11	CARBON	10K 5% 1/4W
				R28	1-249-417-11	CARBON	1K 5% 1/4W
				R29	1-215-418-00	METAL	750 1% 1/6W
				R30	1-249-422-11	CARBON	2.7K 5% 1/4W
				R31	1-249-405-11	CARBON	100 5% 1/4W
				R32	1-249-420-11	CARBON	1.8K 5% 1/4W

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>			<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>		
R33	1-249-429-11	CARBON	10K	5%	1/4W	R105	1-249-433-11	CARBON	22K	5%	1/4W
R34	1-249-428-11	CARBON	8.2K	5%	1/4W	R106	1-249-429-11	CARBON	10K	5%	1/4W
R35	1-249-417-11	CARBON	1K	5%	1/4W	R107	1-249-429-11	CARBON	10K	5%	1/4W
R36	1-249-422-11	CARBON	2.7K	5%	1/4W	R108	1-249-405-11	CARBON	100	5%	1/4W
R37	1-249-405-11	CARBON	100	5%	1/4W	R109	1-249-422-11	CARBON	2.7K	5%	1/4W
R40	1-249-425-11	CARBON	4.7K	5%	1/4W	R110	1-249-405-11	CARBON	100	5%	1/4W
R41	1-249-422-11	CARBON	2.7K	5%	1/4W	R111	1-249-435-11	CARBON	33K	5%	1/4W
R42	1-249-417-11	CARBON	1K	5%	1/4W	R112	1-249-421-11	CARBON	2.2K	5%	1/4W
R43	1-249-417-11	CARBON	1K	5%	1/4W	R113	1-249-421-11	CARBON	2.2K	5%	1/4W
R44	1-249-431-11	CARBON	15K	5%	1/4W	R114	1-249-421-11	CARBON	2.2K	5%	1/4W
R45	1-249-423-11	CARBON	3.3K	5%	1/4W	R115	1-249-433-11	CARBON	22K	5%	1/4W
R46	1-249-417-11	CARBON	1K	5%	1/4W	R116	1-249-429-11	CARBON	10K	5%	1/4W
R47	1-249-423-11	CARBON	3.3K	5%	1/4W	R117	1-249-429-11	CARBON	10K	5%	1/4W
R48	1-249-422-11	CARBON	2.7K	5%	1/4W	R118	1-249-405-11	CARBON	100	5%	1/4W
R49	1-249-405-11	CARBON	100	5%	1/4W	R119	1-249-422-11	CARBON	2.7K	5%	1/4W
R50	1-249-422-11	CARBON	2.7K	5%	1/4W	R120	1-249-405-11	CARBON	100	5%	1/4W
R51	1-247-903-00	CARBON	1M	5%	1/4W	R161	1-215-438-00	METAL	5.1K	1%	1/6W
R52	1-247-866-11	CARBON	30K	5%	1/4W	R162	1-249-431-11	CARBON	15K	5%	1/4W
R53	1-215-445-00	METAL	10K	1%	1/6W	R163	1-249-417-11	CARBON	1K	5%	1/4W
R54	1-249-420-11	CARBON	1.8K	5%	1/4W	R164	1-215-435-00	METAL	3.9K	1%	1/6W
R55	1-249-422-11	CARBON	2.7K	5%	1/4W	R165	1-249-422-11	CARBON	2.7K	5%	1/4W
R56	1-249-405-11	CARBON	100	5%	1/4W	R166	1-249-422-11	CARBON	2.7K	5%	1/4W
R57	1-249-422-11	CARBON	2.7K	5%	1/4W	R167	1-215-409-00	METAL	330	1%	1/6W
R58	1-249-422-11	CARBON	2.7K	5%	1/4W	R168	1-215-411-00	METAL	390	1%	1/6W
R59	1-249-422-11	CARBON	2.7K	5%	1/4W	R169	1-215-427-00	METAL	1.8K	1%	1/6W
R61	1-249-422-11	CARBON	2.7K	5%	1/4W	R170	1-249-425-11	CARBON	4.7K	5%	1/4W
R62	1-249-417-11	CARBON	1K	5%	1/4W	R171	1-215-436-00	METAL	4.3K	1%	1/6W
R63	1-249-417-11	CARBON	1K	5%	1/4W	R172	1-249-431-11	CARBON	15K	5%	1/4W
R64	1-249-431-11	CARBON	15K	5%	1/4W	R173	1-249-417-11	CARBON	1K	5%	1/4W
R65	1-249-423-11	CARBON	3.3K	5%	1/4W	R174	1-215-435-00	METAL	3.9K	1%	1/6W
R66	1-249-417-11	CARBON	1K	5%	1/4W	R175	1-249-422-11	CARBON	2.7K	5%	1/4W
R67	1-249-423-11	CARBON	3.3K	5%	1/4W	R176	1-249-422-11	CARBON	2.7K	5%	1/4W
R68	1-249-422-11	CARBON	2.7K	5%	1/4W	R177	1-215-409-00	METAL	330	1%	1/6W
R69	1-249-405-11	CARBON	100	5%	1/4W	R178	1-215-414-00	METAL	510	1%	1/6W
R70	1-249-422-11	CARBON	2.7K	5%	1/4W	R179	1-215-422-00	METAL	1.1K	1%	1/6W
R71	1-247-903-00	CARBON	1M	5%	1/4W	R180	1-249-425-11	CARBON	4.7K	5%	1/4W
R72	1-247-866-11	CARBON	30K	5%	1/4W	R181	1-215-380-00	METAL	20	1%	1/6W
R73	1-215-445-00	METAL	10K	1%	1/6W	R182	1-215-380-00	METAL	20	1%	1/6W
R74	1-249-420-11	CARBON	1.8K	5%	1/4W	R183	1-249-433-11	CARBON	22K	5%	1/4W
R75	1-249-422-11	CARBON	2.7K	5%	1/4W	R184	1-249-425-11	CARBON	4.7K	5%	1/4W
R76	1-249-405-11	CARBON	100	5%	1/4W	R185	1-249-429-11	CARBON	10K	5%	1/4W
R77	1-249-422-11	CARBON	2.7K	5%	1/4W	R201	1-249-437-11	CARBON	47K	5%	1/4W
R78	1-249-422-11	CARBON	2.7K	5%	1/4W	R202	1-249-429-11	CARBON	10K	5%	1/4W
R79	1-249-422-11	CARBON	2.7K	5%	1/4W	R203	1-249-435-11	CARBON	33K	5%	1/4W
R80	1-249-405-11	CARBON	100	5%	1/4W	R204	1-247-872-11	CARBON	51K	5%	1/4W
<u>VARIABLE RESISTOR</u>											
R81	1-249-422-11	CARBON	2.7K	5%	1/4W	RV1	1-237-514-21	RES, ADJ, CERMET 500			
R82	1-247-903-00	CARBON	1M	5%	1/4W	RV2	1-237-508-21	RES, ADJ, CERMET 500K			
R83	1-249-420-11	CARBON	1.8K	5%	1/4W	RV3	1-237-498-21	RES, ADJ, CERMET 200			
R84	1-249-405-11	CARBON	100	5%	1/4W	RV4	1-237-500-21	RES, ADJ, CERMET 1K			
R85	1-247-866-11	CARBON	30K	5%	1/4W	RV5	1-237-500-21	RES, ADJ, CERMET 1K			
R86	1-215-445-00	METAL	10K	1%	1/6W	RV11	1-237-519-21	RES, ADJ, CERMET 20K			
R87	1-249-422-11	CARBON	2.7K	5%	1/4W	RV12	1-237-519-21	RES, ADJ, CERMET 20K			
R88	1-215-430-00	METAL	2.4K	1%	1/6W	RV13	1-237-519-21	RES, ADJ, CERMET 20K			
R89	1-215-443-00	METAL	8.2K	1%	1/6W	RV14	1-237-519-21	RES, ADJ, CERMET 20K			
R90	1-249-430-11	CARBON	12K	5%	1/4W	RV15	1-237-519-21	RES, ADJ, CERMET 20K			
R91	1-249-405-11	CARBON	100	5%	1/4W	RV16	1-237-519-21	RES, ADJ, CERMET 20K			
R92	1-247-830-11	CARBON	910	5%	1/4W	RV21	1-237-517-21	RES, ADJ, CERMET 5K			
R93	1-215-421-00	METAL	1K	1%	1/6W	RV22	1-237-517-21	RES, ADJ, CERMET 5K			
R94	1-249-422-11	CARBON	2.7K	5%	1/4W						
R98	1-249-422-11	CARBON	2.7K	5%	1/4W						
R99	1-249-422-11	CARBON	2.7K	5%	1/4W						
R101	1-249-432-11	CARBON	18K	5%	1/4W						
R102	1-249-421-11	CARBON	2.2K	5%	1/4W						
R103	1-249-421-11	CARBON	2.2K	5%	1/4W						
R104	1-249-421-11	CARBON	2.2K	5%	1/4W						

BH

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark				
	* A-1135-359-A	BH BOARD, COMPLETE	*****	C203	1-102-959-00	CERAMIC	22PF 5% 50V				

	* 4-353-708-00	HOOK, FINGER		C204	1-123-356-00	ELECT	10MF 20% 16V				
	7-682-547-04	SCREW BVTT	3X6 (S)	C205	1-161-021-11	CERAMIC	0.047MF 10% 25V				
	CAPACITOR										
C1	1-124-034-51	ELECT	33MF 20% 16V	C206	1-101-004-00	CERAMIC	0.01MF 50V				
C2	1-124-034-51	ELECT	33MF 20% 16V	C207	1-161-021-11	CERAMIC	0.047MF 10% 25V				
C3	1-124-034-51	ELECT	33MF 20% 16V	C208	1-101-004-00	CERAMIC	0.01MF 50V				
C4	1-124-034-51	ELECT	33MF 20% 16V	C209	1-101-004-00	CERAMIC	0.01MF 50V				
C5	1-124-034-51	ELECT	33MF 20% 16V	C210	1-101-880-00	CERAMIC	47PF 5% 50V				
C6	1-124-034-51	ELECT	33MF 20% 16V	C301	1-161-021-11	CERAMIC	0.047MF 10% 25V				
C7	1-124-034-51	ELECT	33MF 20% 16V	C302	1-102-942-00	CERAMIC	5PF 0.5PF 50V				
C8	1-124-034-51	ELECT	33MF 20% 16V	C303	1-102-959-00	CERAMIC	22PF 5% 50V				
C9	1-124-034-51	ELECT	33MF 20% 16V	C304	1-123-356-00	ELECT	10MF 20% 16V				
C10	1-124-034-51	ELECT	33MF 20% 16V	C305	1-161-021-11	CERAMIC	0.047MF 10% 25V				
C11	1-124-034-51	ELECT	33MF 20% 16V	C306	1-101-004-00	CERAMIC	0.01MF 50V				
C12	1-124-034-51	ELECT	33MF 20% 16V	C307	1-161-021-11	CERAMIC	0.047MF 10% 25V				
C13	1-124-034-51	ELECT	33MF 20% 16V	C308	1-101-004-00	CERAMIC	0.01MF 50V				
C14	1-124-034-51	ELECT	33MF 20% 16V	C309	1-101-004-00	CERAMIC	0.01MF 50V				
C15	1-101-004-00	CERAMIC	0.01MF 50V	C310	1-101-880-00	CERAMIC	47PF 5% 50V				
DIODE											
D1	8-719-911-19	DIODE 1SS119		D101	8-719-911-19	DIODE 1SS119					
D102	8-719-911-19	DIODE 1SS119		D201	8-719-911-19	DIODE 1SS119					
D202	8-719-911-19	DIODE 1SS119		D301	8-719-911-19	DIODE 1SS119					
D302	8-719-911-19	DIODE 1SS119		IC							
C22	1-123-356-00	ELECT	10MF 20% 16V	IC1	8-759-040-53	IC TC4053BPHB					
C23	1-123-356-00	ELECT	10MF 20% 16V	IC2	8-759-040-53	IC TC4053BPHB					
C24	1-123-356-00	ELECT	10MF 20% 16V	IC3	8-759-040-53	IC TC4053BPHB					
C26	1-101-004-00	CERAMIC	0.01MF 50V	IC4	8-759-040-53	IC TC4053BPHB					
C41	1-124-122-11	ELECT	100MF 20% 16V	IC5	8-759-981-95	IC RC4558S					
C42	1-123-356-00	ELECT	10MF 20% 16V	IC6	8-759-981-95	IC RC4558S					
C43	1-123-356-00	ELECT	10MF 20% 16V	IC7	8-759-800-81	IC LA7016					
C44	1-123-356-00	ELECT	10MF 20% 16V	IC8	8-759-800-81	IC LA7016					
C45	1-123-356-00	ELECT	10MF 20% 16V	IC9	8-759-140-53	IC MC14053BCP					
C50	1-123-356-00	ELECT	10MF 20% 16V	IC10	8-759-140-53	IC MC14053BCP					
C51	1-101-004-00	CERAMIC	0.01MF 50V	IC11	8-759-240-81	IC TC4081BP					
C52	1-101-004-00	CERAMIC	0.01MF 50V	IC12	8-759-240-81	IC TC4081BP					
C53	1-101-004-00	CERAMIC	0.01MF 50V	IC13	8-759-240-01	IC TC4001BP					
C54	1-101-004-00	CERAMIC	0.01MF 50V	IC14	8-759-207-73	IC TC4030BPHB					
C55	1-101-004-00	CERAMIC	0.01MF 50V	IC101	8-766-001-49	TRANSISTOR TX-429M					
C71	1-124-122-11	ELECT	100MF 20% 16V	IC102	8-759-990-82	IC TL082CP					
C72	1-123-356-00	ELECT	10MF 20% 16V	IC201	8-766-001-49	TRANSISTOR TX-429M					
C73	1-123-356-00	ELECT	10MF 20% 16V	IC202	8-759-990-82	IC TL082CP					
C74	1-123-356-00	ELECT	10MF 20% 16V	IC301	8-766-001-49	TRANSISTOR TX-429M					
C80	1-123-356-00	ELECT	10MF 20% 16V	IC302	8-759-990-82	IC TL082CP					
TRANSISTOR											
C81	1-101-004-00	CERAMIC	0.01MF 50V	Q1	8-729-119-78	TRANSISTOR 2SC2785-HFE					
C82	1-101-004-00	CERAMIC	0.01MF 50V	Q2	8-729-105-71	TRANSISTOR 2SK523-K2					
C83	1-101-004-00	CERAMIC	0.01MF 50V	Q3	8-729-384-48	TRANSISTOR 2SA844-E					
C84	1-101-004-00	CERAMIC	0.01MF 50V	Q4	8-729-119-78	TRANSISTOR 2SC2785-HFE					
C85	1-101-004-00	CERAMIC	0.01MF 50V	Q5	8-729-105-71	TRANSISTOR 2SK523-K2					
C86	1-101-004-00	CERAMIC	0.01MF 50V	Q6	8-729-384-48	TRANSISTOR 2SA844-E					
C101	1-161-021-11	CERAMIC	0.047MF 10% 25V	Q7	8-729-119-78	TRANSISTOR 2SC2785-HFE					
C102	1-102-942-00	CERAMIC	5PF 0.5PF 50V	Q8	8-729-105-71	TRANSISTOR 2SK523-K2					
C103	1-102-959-00	CERAMIC	22PF 5% 50V	Q9	8-729-384-48	TRANSISTOR 2SA844-E					
C104	1-123-356-00	ELECT	10MF 20% 16V	Q10	8-729-119-78	TRANSISTOR 2SC2785-HFE					
C105	1-161-021-11	CERAMIC	0.047MF 10% 25V	Q11	8-729-105-71	TRANSISTOR 2SK523-K2					
C106	1-101-004-00	CERAMIC	0.01MF 50V	Q12	8-729-384-48	TRANSISTOR 2SA844-E					
C107	1-161-021-11	CERAMIC	0.047MF 10% 25V	Q13	8-729-384-48	TRANSISTOR 2SA844-E					
C108	1-101-004-00	CERAMIC	0.01MF 50V	Q14	8-729-384-48	TRANSISTOR 2SA844-E					
C109	1-101-004-00	CERAMIC	0.01MF 50V	Q15	8-729-384-48	TRANSISTOR 2SA844-E					
C110	1-101-880-00	CERAMIC	47PF 5% 50V								
C201	1-161-021-11	CERAMIC	0.047MF 10% 25V								
C202	1-102-942-00	CERAMIC	5PF 0.5PF 50V								



Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark	
Q16	8-729-800-10	TRANSISTOR 2SC3068		R108	1-249-415-11	CARBON	680 5% 1/4W	
Q101	8-729-600-19	TRANSISTOR 2SK381-A		R109	1-249-419-11	CARBON	1.5K 5% 1/4W	
Q102	8-729-384-48	TRANSISTOR 2SA844-E		R110	1-215-427-00	METAL	1.8K 1% 1/6W	
Q103	8-729-119-78	TRANSISTOR 2SC2785-HFE		R111	1-215-453-00	METAL	22K 1% 1/6W	
Q104	8-729-119-78	TRANSISTOR 2SC2785-HFE		R112	1-249-419-11	CARBON	1.5K 5% 1/4W	
Q105	8-729-119-78	TRANSISTOR 2SC2785-HFE		R113	1-249-405-11	CARBON	100 5% 1/4W	
Q106	8-729-600-19	TRANSISTOR 2SK381-A		R114	1-215-445-00	METAL	10K 1% 1/6W	
Q107	8-729-600-19	TRANSISTOR 2SK381-A		R115	1-215-445-00	METAL	10K 1% 1/6W	
Q108	8-729-600-19	TRANSISTOR 2SK381-A		R116	1-249-429-11	CARBON	10K 5% 1/4W	
Q201	8-729-600-19	TRANSISTOR 2SK381-A		R117	1-215-493-00	METAL	1M 1% 1/6W	
Q202	8-729-384-48	TRANSISTOR 2SA844-E		R120	1-215-451-00	METAL	18K 1% 1/6W	
Q203	8-729-119-78	TRANSISTOR 2SC2785-HFE		R121	1-215-453-00	METAL	22K 1% 1/6W	
Q204	8-729-119-78	TRANSISTOR 2SC2785-HFE		R201	1-247-903-00	CARBON	1M 5% 1/4W	
Q205	8-729-119-78	TRANSISTOR 2SC2785-HFE		R202	1-249-431-11	CARBON	15K 5% 1/4W	
Q206	8-729-600-19	TRANSISTOR 2SK381-A		R203	1-249-419-11	CARBON	1.5K 5% 1/4W	
Q207	8-729-600-19	TRANSISTOR 2SK381-A		R204	1-249-430-11	CARBON	12K 5% 1/4W	
Q208	8-729-600-19	TRANSISTOR 2SK381-A		R205	1-249-409-11	CARBON	220 5% 1/4W	
Q301	8-729-600-19	TRANSISTOR 2SK381-A		R206	1-249-419-11	CARBON	1.5K 5% 1/4W	
Q302	8-729-384-48	TRANSISTOR 2SA844-E		R207	1-215-425-00	METAL	1.5K 1% 1/6W	
Q303	8-729-119-78	TRANSISTOR 2SC2785-HFE		R208	1-249-415-11	CARBON	680 5% 1/4W	
Q304	8-729-119-78	TRANSISTOR 2SC2785-HFE		R209	1-249-419-11	CARBON	1.5K 5% 1/4W	
Q305	8-729-119-78	TRANSISTOR 2SC2785-HFE		R210	1-215-427-00	METAL	1.8K 1% 1/6W	
Q306	8-729-600-19	TRANSISTOR 2SK381-A		R211	1-215-453-00	METAL	22K 1% 1/6W	
Q307	8-729-600-19	TRANSISTOR 2SK381-A		R212	1-249-419-11	CARBON	1.5K 5% 1/4W	
Q308	8-729-600-19	TRANSISTOR 2SK381-A		R213	1-249-405-11	CARBON	100 5% 1/4W	
<u>RESISTOR</u>								
R1	1-249-433-11	CARBON	22K 5% 1/4W	R214	1-215-445-00	METAL	10K 1% 1/6W	
R3	1-249-427-11	CARBON	6.8K 5% 1/4W	R215	1-215-445-00	METAL	10K 1% 1/6W	
R5	1-249-422-11	CARBON	2.7K 5% 1/4W	R216	1-249-429-11	CARBON	10K 5% 1/4W	
R6	1-249-433-11	CARBON	22K 5% 1/4W	R217	1-215-455-00	METAL	27K 1% 1/6W	
R7	1-249-433-11	CARBON	22K 5% 1/4W	R301	1-247-903-00	CARBON	1M 5% 1/4W	
R9	1-249-427-11	CARBON	6.8K 5% 1/4W	R302	1-249-431-11	CARBON	15K 5% 1/4W	
R11	1-249-422-11	CARBON	2.7K 5% 1/4W	R303	1-249-419-11	CARBON	1.5K 5% 1/4W	
R12	1-249-433-11	CARBON	22K 5% 1/4W	R304	1-249-430-11	CARBON	12K 5% 1/4W	
R13	1-249-433-11	CARBON	22K 5% 1/4W	R305	1-249-409-11	CARBON	220 5% 1/4W	
R15	1-249-427-11	CARBON	6.8K 5% 1/4W	R306	1-249-419-11	CARBON	1.5K 5% 1/4W	
R17	1-249-422-11	CARBON	2.7K 5% 1/4W	R307	1-215-425-00	METAL	1.5K 1% 1/6W	
R18	1-249-433-11	CARBON	22K 5% 1/4W	R308	1-249-415-11	CARBON	680 5% 1/4W	
R19	1-249-433-11	CARBON	22K 5% 1/4W	R309	1-249-419-11	CARBON	1.5K 5% 1/4W	
R21	1-249-427-11	CARBON	6.8K 5% 1/4W	R310	1-215-427-00	METAL	1.8K 1% 1/6W	
R23	1-249-422-11	CARBON	2.7K 5% 1/4W	R311	1-215-453-00	METAL	22K 1% 1/6W	
R31	1-249-405-11	CARBON	100 5% 1/4W	R312	1-249-419-11	CARBON	1.5K 5% 1/4W	
R32	1-249-405-11	CARBON	100 5% 1/4W	R313	1-249-405-11	CARBON	100 5% 1/4W	
R33	1-249-433-11	CARBON	22K 5% 1/4W	R314	1-215-445-00	METAL	10K 1% 1/6W	
R34	1-249-422-11	CARBON	2.7K 5% 1/4W	R315	1-215-445-00	METAL	10K 1% 1/6W	
R35	1-249-405-11	CARBON	100 5% 1/4W	R316	1-249-429-11	CARBON	10K 5% 1/4W	
<u>VARIABLE RESISTOR</u>								
R36	1-249-405-11	CARBON	100 5% 1/4W	RV1	1-237-505-21	RES, ADJ, CERMET 50K		
R37	1-249-433-11	CARBON	22K 5% 1/4W	RV2	1-237-505-21	RES, ADJ, CERMET 50K		
R38	1-249-422-11	CARBON	2.7K 5% 1/4W	RV3	1-237-505-21	RES, ADJ, CERMET 50K		
R39	1-249-433-11	CARBON	22K 5% 1/4W					
R40	1-249-422-11	CARBON	2.7K 5% 1/4W	<u>SWITCH</u>				
R52	1-249-417-11	CARBON	1K 5% 1/4W	S1	1-570-857-11	SWITCH, SLIDE		
R53	1-249-425-11	CARBON	4.7K 5% 1/4W	S2	1-570-851-11	SWITCH, SLIDE		
R54	1-249-441-11	CARBON	100K 5% 1/4W					
R63	1-249-417-11	CARBON	1K 5% 1/4W	*****				
R64	1-249-437-11	CARBON	47K 5% 1/4W	*A-1135-360-A BI BOARD, COMPLETE				
R65	1-249-433-11	CARBON	22K 5% 1/4W	*****				
R66	1-249-417-11	CARBON	1K 5% 1/4W					
R101	1-247-903-00	CARBON	1M 5% 1/4W					
R102	1-249-431-11	CARBON	15K 5% 1/4W					
R103	1-249-419-11	CARBON	1.5K 5% 1/4W	*4-353-708-00 HOOK, FINGER 7-682-547-04 SCREW BVTT 3X6 (S)				
<u>CAPACITOR</u>								
R104	1-249-430-11	CARBON	12K 5% 1/4W	C1	1-130-481-00	MYLAR	0.0068MF 5% 50V	
R105	1-249-409-11	CARBON	220 5% 1/4W	C2	1-136-165-00	FILM	0.1MF 5% 50V	
R106	1-249-419-11	CARBON	1.5K 5% 1/4W					
R107	1-215-425-00	METAL	1.5K 1% 1/6W					



7. ELECTRICAL PARTS LIST

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C3	1-123-369-00	ELECT	4.7MF 20% 25V	C210	1-136-161-00	FILM	0.047MF 5% 50V
C4	1-123-369-00	ELECT	4.7MF 20% 25V	C214	1-102-951-00	CERAMIC	15PF 5% 50V
C5	1-102-973-00	CERAMIC	100PF 5% 50V	C215	1-136-153-00	FILM	0.01MF 5% 50V
C7	1-123-330-00	ELECT	22MF 20% 25V	C216	1-102-973-00	CERAMIC	100PF 5% 50V
C8	1-123-369-00	ELECT	4.7MF 20% 25V	C217	1-101-004-00	CERAMIC	0.01MF 50V
C11	1-123-356-00	ELECT	10MF 20% 16V	C218	1-101-004-00	CERAMIC	0.01MF 50V
C12	1-101-004-00	CERAMIC	0.01MF 50V	C219	1-102-953-00	CERAMIC	18PF 5% 50V
C13	1-101-004-00	CERAMIC	0.01MF 50V	C220	1-102-038-00	CERAMIC	0.001MF 500V
C14	1-101-004-00	CERAMIC	0.01MF 50V	C222	1-102-943-00	CERAMIC	6PF 0.5PF 50V
C15	1-123-330-00	ELECT	22MF 20% 16V	C301	1-101-004-00	CERAMIC	0.01MF 50V
C16	1-123-356-00	ELECT	10MF 20% 16V	C302	1-123-380-00	ELECT	1MF 20% 50V
C17	1-101-004-00	CERAMIC	0.01MF 50V	C304	1-123-356-00	ELECT	10MF 20% 16V
C18	1-101-004-00	CERAMIC	0.01MF 50V	C305	1-101-004-00	CERAMIC	0.01MF 50V
C19	1-101-004-00	CERAMIC	0.01MF 50V	C306	1-136-161-00	FILM	0.047MF 5% 50V
C41	1-124-034-51	ELECT	33MF 20% 16V	C307	1-102-937-00	CERAMIC	4PF 0.25PF 50V
C42	1-124-034-51	ELECT	33MF 20% 16V	C308	1-101-880-00	CERAMIC	47PF 5% 50V
C43	1-124-034-51	ELECT	33MF 20% 16V	C309	1-136-161-00	FILM	0.047MF 5% 50V
C44	1-124-034-51	ELECT	33MF 20% 16V	C310	1-136-161-00	FILM	0.047MF 5% 50V
C45	1-124-034-51	ELECT	33MF 20% 16V	C314	1-102-951-00	CERAMIC	15PF 5% 50V
C46	1-124-034-51	ELECT	33MF 20% 16V	C315	1-136-153-00	FILM	0.01MF 5% 50V
C51	1-101-004-00	CERAMIC	0.01MF 50V	C316	1-102-973-00	CERAMIC	100PF 5% 50V
C52	1-101-004-00	CERAMIC	0.01MF 50V	C317	1-101-004-00	CERAMIC	0.01MF 50V
C53	1-101-004-00	CERAMIC	0.01MF 50V	C318	1-101-004-00	CERAMIC	0.01MF 50V
C54	1-101-004-00	CERAMIC	0.01MF 50V	C319	1-102-953-00	CERAMIC	18PF 5% 50V
C55	1-101-004-00	CERAMIC	0.01MF 50V	C320	1-102-038-00	CERAMIC	0.001MF 500V
C56	1-101-004-00	CERAMIC	0.01MF 50V	C322	1-102-943-00	CERAMIC	6PF 0.5PF 50V
C57	1-101-004-00	CERAMIC	0.01MF 50V				
C71	1-124-034-51	ELECT	33MF 20% 16V				
C72	1-124-034-51	ELECT	33MF 20% 16V				
C73	1-124-034-51	ELECT	33MF 20% 16V				
C74	1-124-034-51	ELECT	33MF 20% 16V	D1	8-719-911-19	DIODE ISS119	
C75	1-124-034-51	ELECT	33MF 20% 16V	D2	8-719-911-19	DIODE ISS119	
C76	1-124-034-51	ELECT	33MF 20% 16V	D4	8-719-911-19	DIODE ISS119	
C81	1-101-004-00	CERAMIC	0.01MF 50V	D5	8-719-911-19	DIODE ISS119	
C82	1-101-004-00	CERAMIC	0.01MF 50V	D6	8-719-110-31	DIODE RD12ES-B2	
C83	1-101-004-00	CERAMIC	0.01MF 50V	D7	8-719-911-19	DIODE ISS119	
C84	1-101-004-00	CERAMIC	0.01MF 50V	D8	8-719-911-19	DIODE ISS119	
C85	1-101-004-00	CERAMIC	0.01MF 50V	D101	8-719-911-19	DIODE ISS119	
C86	1-101-004-00	CERAMIC	0.01MF 50V	D102	8-719-016-42	DIODE MC932	
C87	1-101-004-00	CERAMIC	0.01MF 50V	D103	8-719-109-74	DIODE RD4.3ES-B1	
C101	1-101-004-00	CERAMIC	0.01MF 50V	D104	8-719-911-19	DIODE ISS119	
C102	1-123-380-00	ELECT	1MF 20% 50V	D105	8-719-109-93	DIODE RD6.2ES-B2	
C104	1-123-356-00	ELECT	10MF 20% 16V	D201	8-719-911-19	DIODE ISS119	
C105	1-101-004-00	CERAMIC	0.01MF 50V	D202	8-719-016-42	DIODE MC932	
C106	1-136-161-00	FILM	0.047MF 5% 50V	D203	8-719-109-74	DIODE RD4.3ES-B1	
C107	1-102-937-00	CERAMIC	4PF 0.25PF 50V	D204	8-719-911-19	DIODE ISS119	
C108	1-101-880-00	CERAMIC	47PF 5% 50V	D205	8-719-109-93	DIODE RD6.2ES-B2	
C109	1-136-161-00	FILM	0.047MF 5% 50V	D301	8-719-911-19	DIODE ISS119	
C110	1-136-161-00	FILM	0.047MF 5% 50V	D302	8-719-016-42	DIODE MC932	
C114	1-102-951-00	CERAMIC	15PF 5% 50V	D303	8-719-109-74	DIODE RD4.3ES-B1	
C115	1-136-153-00	FILM	0.01MF 5% 50V	D304	8-719-911-19	DIODE ISS119	
C116	1-102-973-00	CERAMIC	100PF 5% 50V	D305	8-719-109-93	DIODE RD6.2ES-B2	
C117	1-101-004-00	CERAMIC	0.01MF 50V				
C118	1-101-004-00	CERAMIC	0.01MF 50V				
C119	1-102-953-00	CERAMIC	18PF 5% 50V				
C120	1-102-038-00	CERAMIC	0.001MF 500V	IC1	8-759-945-58	IC RC4558P	
C122	1-102-943-00	CERAMIC	6PF 0.5PF 50V	IC101	8-759-040-53	IC MC14053BCP	
C201	1-101-004-00	CERAMIC	0.01MF 50V	IC102	8-766-001-49	TRANSISTOR TX-429M	
C202	1-123-380-00	ELECT	1MF 20% 50V	IC103	8-759-990-82	IC TL082CP	
C204	1-123-356-00	ELECT	10MF 20% 16V	IC104	8-759-990-82	IC TL082CP	
C205	1-101-004-00	CERAMIC	0.01MF 50V	IC205	8-759-990-82	IC TL082CP	
C206	1-136-161-00	FILM	0.047MF 5% 50V	IC204	8-759-990-82	IC TL082CP	
C207	1-102-937-00	CERAMIC	4PF 0.25PF 50V				
C208	1-101-880-00	CERAMIC	47PF 5% 50V	IC205	8-759-990-82	IC TL082CP	
C209	1-136-161-00	FILM	0.047MF 5% 50V	IC301	8-759-040-53	IC MC14053BCP	
				IC302	8-766-001-49	TRANSISTOR TX-429M	

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
IC303	8-759-990-82	IC TL082CP		R32	1-249-436-11	CARBON	39K 5% 1/4W
IC304	8-759-990-82	IC TL082CP		R33	1-249-430-11	CARBON	12K 5% 1/4W
IC305	8-759-990-82	IC TL082CP		R51	1-249-417-11	CARBON	1K 5% 1/4W
<u>TRANSISTOR</u>							
Q1	8-729-900-74	TRANSISTOR DTC143TS		R52	1-249-417-11	CARBON	1K 5% 1/4W
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE		R53	1-249-417-11	CARBON	1K 5% 1/4W
Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE		R54	1-249-431-11	CARBON	15K 5% 1/4W
Q11	8-729-201-05	TRANSISTOR 2SC2878-B		R55	1-249-437-11	CARBON	47K 5% 1/4W
Q12	8-729-201-05	TRANSISTOR 2SC2878-B		R56	1-249-431-11	CARBON	15K 5% 1/4W
Q13	8-729-201-05	TRANSISTOR 2SC2878-B		R57	1-249-431-11	CARBON	15K 5% 1/4W
Q14	8-729-201-05	TRANSISTOR 2SC2878-B		R58	1-249-439-11	CARBON	68K 5% 1/4W
Q15	8-729-926-32	TRANSISTOR XDA144ES		R60	1-215-465-00	METAL	68K 1% 1/6W
Q101	8-729-384-48	TRANSISTOR 2SA844-E		R61	1-215-445-00	METAL	10K 1% 1/6W
Q102	8-729-384-48	TRANSISTOR 2SA844-E		R101	1-249-441-11	CARBON	100K 5% 1/4W
Q103	8-729-384-48	TRANSISTOR 2SA844-E		R102	1-249-421-11	CARBON	22K 5% 1/4W
Q105	8-729-600-19	TRANSISTOR 2SK381-A		R104	1-215-469-00	METAL	100K 1% 1/6W
Q106	8-729-384-48	TRANSISTOR 2SA844-E		R105	1-215-477-00	METAL	220K 1% 1/6W
Q107	8-729-266-82	TRANSISTOR 2SC2668-O		R106	1-215-427-00	METAL	1.8K 1% 1/6W
Q108	8-729-384-48	TRANSISTOR 2SA844-E		R107	1-249-435-11	CARBON	33K 5% 1/4W
Q109	8-729-600-19	TRANSISTOR 2SK381-A		R108	1-249-430-11	CARBON	12K 5% 1/4W
Q110	8-729-600-19	TRANSISTOR 2SK381-A		R109	1-249-417-11	CARBON	1K 5% 1/4W
Q113	8-729-600-19	TRANSISTOR 2SK381-A		R110	1-249-441-11	CARBON	100K 5% 1/4W
Q114	8-729-200-17	TRANSISTOR 2SA1091-O		R111	1-249-417-11	CARBON	1K 5% 1/4W
Q201	8-729-384-48	TRANSISTOR 2SA844-E		R112	1-249-417-11	CARBON	1K 5% 1/4W
Q202	8-729-384-48	TRANSISTOR 2SA844-E		R113	1-247-903-00	CARBON	1M 5% 1/4W
Q203	8-729-384-48	TRANSISTOR 2SA844-E		R114	1-249-419-11	CARBON	1.5K 5% 1/4W
Q205	8-729-600-19	TRANSISTOR 2SK381-A		R115	1-249-419-11	CARBON	1.5K 5% 1/4W
Q206	8-729-384-48	TRANSISTOR 2SA844-E		R116	1-249-424-11	CARBON	3.9K 5% 1/4W
Q207	8-729-266-82	TRANSISTOR 2SC2668-O		R117	1-249-419-11	CARBON	1.5K 5% 1/4W
Q208	8-729-384-48	TRANSISTOR 2SA844-E		R118	1-215-421-00	METAL	1K 1% 1/6W
Q209	8-729-600-19	TRANSISTOR 2SK381-A		R119	1-249-405-11	CARBON	100 5% 1/4W
Q210	8-729-600-19	TRANSISTOR 2SK381-A		R120	1-249-405-11	CARBON	100 5% 1/4W
Q213	8-729-600-19	TRANSISTOR 2SK381-A		R121	1-249-409-11	CARBON	220 5% 1/4W
Q214	8-729-200-17	TRANSISTOR 2SA1091-O		R122	1-215-427-00	METAL	1.8K 1% 1/6W
Q301	8-729-384-48	TRANSISTOR 2SA844-E		R123	1-249-429-11	CARBON	10K 5% 1/4W
Q302	8-729-384-48	TRANSISTOR 2SA844-E		R124	1-249-429-11	CARBON	10K 5% 1/4W
Q303	8-729-384-48	TRANSISTOR 2SA844-E		R125	1-249-422-11	CARBON	2.7K 5% 1/4W
Q305	8-729-600-19	TRANSISTOR 2SK381-A		R127	1-215-453-00	METAL	22K 1% 1/6W
Q306	8-729-384-48	TRANSISTOR 2SA844-E		R128	1-215-445-00	METAL	10K 1% 1/6W
Q307	8-729-266-82	TRANSISTOR 2SC2668-O		R136	1-215-477-00	METAL	220K 1% 1/6W
Q308	8-729-384-48	TRANSISTOR 2SA844-E		R137	1-249-417-11	CARBON	1K 5% 1/4W
Q309	8-729-600-19	TRANSISTOR 2SK381-A		R138	1-249-441-11	CARBON	100K 5% 1/4W
Q310	8-729-600-19	TRANSISTOR 2SK381-A		R140	1-249-429-11	CARBON	10K 5% 1/4W
Q313	8-729-600-19	TRANSISTOR 2SK381-A		R141	1-215-469-00	METAL	100K 1% 1/6W
Q314	8-729-200-17	TRANSISTOR 2SA1091-O		R142	1-215-455-00	METAL	27K 1% 1/6W
<u>RESISTOR</u>							
R1	1-247-903-00	CARBON	1M 5% 1/4W	R143	1-215-488-00	METAL	620K 1% 1/6W
R2	1-249-429-11	CARBON	10K 5% 1/4W	R144	1-249-434-11	CARBON	27K 5% 1/4W
R3	1-215-493-00	METAL	1M 1% 1/5W	R146	1-249-417-11	CARBON	1K 5% 1/4W
R4	1-215-469-00	METAL	100K 1% 1/6W	R201	1-249-441-11	CARBON	100K 5% 1/4W
R5	1-249-435-11	CARBON	33K 5% 1/4W	R202	1-249-421-11	CARBON	2.2K 5% 1/4W
R8	1-249-441-11	CARBON	100K 5% 1/4W	R204	1-215-469-00	METAL	100K 1% 1/6W
R9	1-249-424-11	CARBON	3.9K 5% 1/4W	R205	1-215-477-00	METAL	220K 1% 1/6W
R10	1-249-425-11	CARBON	4.7K 5% 1/4W	R206	1-215-427-00	METAL	1.8K 1% 1/6W
R11	1-249-435-11	CARBON	33K 5% 1/4W	R207	1-249-435-11	CARBON	33K 5% 1/4W
R12	1-249-429-11	CARBON	10K 5% 1/4W	R208	1-249-430-11	CARBON	12K 5% 1/4W
R13	1-249-425-11	CARBON	4.7K 5% 1/4W	R209	1-249-417-11	CARBON	1K 5% 1/4W
R14	1-249-435-11	CARBON	33K 5% 1/4W	R210	1-249-441-11	CARBON	100K 5% 1/4W
R15	1-249-429-11	CARBON	10K 5% 1/4W	R211	1-249-417-11	CARBON	1K 5% 1/4W
R23	1-249-417-11	CARBON	1K 5% 1/4W	R212	1-249-417-11	CARBON	1K 5% 1/4W
R24	1-249-417-11	CARBON	1K 5% 1/4W	R213	1-247-903-00	CARBON	1M 5% 1/4W
R25	1-249-417-11	CARBON	1K 5% 1/4W	R214	1-249-419-11	CARBON	1.5K 5% 1/4W
R31	1-249-430-11	CARBON	12K 5% 1/4W	R215	1-249-419-11	CARBON	1.5K 5% 1/4W
				R216	1-249-424-11	CARBON	3.9K 5% 1/4W
				R217	1-249-419-11	CARBON	1.5K 5% 1/4W
				R218	1-215-421-00	METAL	1K 1% 1/6W

BI **BJ**

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R219	1-249-405-11	CARBON	100 5% 1/4W	C2	1-101-361-00	CERAMIC	150PF 5% 50V
R220	1-249-405-11	CARBON	100 5% 1/4W	C4	1-102-821-00	CERAMIC	360PF 5% 50V
R221	1-249-409-11	CARBON	220 5% 1/4W	C5	1-130-473-00	MYLAR	0.0015MF 5% 50V
R222	1-215-427-00	METAL	18K 1% 1/6W	C11	1-104-302-11	POLYSTYRENE	0.001MF 5% 50V
R223	1-249-429-11	CARBON	10K 5% 1/4W	C12	1-102-525-11	CERAMIC	68PF 5% 50V
R224	1-249-429-11	CARBON	10K 5% 1/4W	C14	1-102-525-11	CERAMIC	68PF 5% 50V
R225	1-249-422-11	CARBON	27K 5% 1/4W	C15	1-102-525-11	CERAMIC	68PF 5% 50V
R227	1-215-453-00	METAL	22K 1% 1/6W	C16	1-102-525-11	CERAMIC	68PF 5% 50V
R228	1-215-445-00	METAL	10K 1% 1/6W	C17	1-102-525-11	CERAMIC	68PF 5% 50V
R236	1-215-477-00	METAL	220K 1% 1/6W	C18	1-104-302-11	POLYSTYRENE	0.001MF 5% 50V
R237	1-249-417-11	CARBON	1K 5% 1/4W	C19	1-102-973-00	CERAMIC	100PF 5% 50V
R238	1-249-441-11	CARBON	100K 5% 1/4W	C20	1-102-525-11	CERAMIC	68PF 5% 50V
R240	1-249-429-11	CARBON	10K 5% 1/4W	C21	1-101-361-00	CERAMIC	150PF 5% 50V
R241	1-215-469-00	METAL	100K 1% 1/6W	C22	1-101-890-00	CERAMIC	75PF 5% 50V
R242	1-215-455-00	METAL	27K 1% 1/6W	C23	1-102-965-00	CERAMIC	39PF 5% 50V
R243	1-215-488-00	METAL	620K 1% 1/6W	C25	1-102-811-91	CERAMIC	9PF 1PF 50V
R244	1-249-434-11	CARBON	27K 5% 1/4W	C26	1-102-944-00	CERAMIC	7PF 1PF 50V
R246	1-249-417-11	CARBON	1K 5% 1/4W	C27	1-101-361-00	CERAMIC	150PF 5% 50V
R247	1-249-405-11	CARBON	100 5% 1/4W	C28	1-130-471-00	MYLAR	0.001MF 5% 50V
R301	1-249-441-11	CARBON	100K 5% 1/4W	C29	1-130-471-00	MYLAR	0.001MF 5% 50V
R302	1-249-421-11	CARBON	2.2K 5% 1/4W	C30	1-101-004-00	CERAMIC	0.01MF 50V
R304	1-215-469-00	METAL	100K 1% 1/6W	C31	1-101-361-00	CERAMIC	150PF 5% 50V
R305	1-215-477-00	METAL	220K 1% 1/6W	C32	1-101-361-00	CERAMIC	150PF 5% 50V
R306	1-215-427-00	METAL	18K 1% 1/6W	C33	1-101-361-00	CERAMIC	150PF 5% 50V
R307	1-249-435-11	CARBON	33K 5% 1/4W	C34	1-101-361-00	CERAMIC	150PF 5% 50V
R308	1-249-430-11	CARBON	12K 5% 1/4W	C35	1-130-471-00	MYLAR	0.001MF 5% 50V
R309	1-249-417-11	CARBON	1K 5% 1/4W	C36	1-102-824-00	CERAMIC	470PF 5% 50V
R310	1-249-441-11	CARBON	100K 5% 1/4W	C37	1-123-380-00	ELECT	1MF 20% 50V
R311	1-249-417-11	CARBON	1K 5% 1/4W	C38	1-101-004-00	CERAMIC	0.01MF 50V
R312	1-249-417-11	CARBON	1K 5% 1/4W	C39	1-101-004-00	CERAMIC	0.01MF 50V
R313	1-247-903-00	CARBON	1M 5% 1/4W	C40	1-102-074-00	CERAMIC	0.001MF 10% 50V
R314	1-249-419-11	CARBON	1.5K 5% 1/4W	C61	1-101-888-00	CERAMIC	68PF 5% 50V
R315	1-249-419-11	CARBON	1.5K 5% 1/4W	C62	1-101-880-00	CERAMIC	47PF 5% 50V
R316	1-249-424-11	CARBON	3.9K 5% 1/4W	C63	1-101-888-00	CERAMIC	68PF 5% 50V
R317	1-249-419-11	CARBON	1.5K 5% 1/4W	C64	1-101-880-00	CERAMIC	47PF 5% 50V
R318	1-215-421-00	METAL	1K 1% 1/6W	C65	1-102-820-00	CERAMIC	330PF 5% 50V
R319	1-249-405-11	CARBON	100 5% 1/4W	C66	1-101-004-00	CERAMIC	0.01MF 50V
R320	1-249-405-11	CARBON	100 5% 1/4W	C67	1-101-880-00	CERAMIC	47PF 5% 50V
R321	1-249-409-11	CARBON	220 5% 1/4W	C100	1-124-910-11	ELECT	47MF 20% 16V
R322	1-215-427-00	METAL	1.8K 1% 1/6W	C102	1-124-034-51	ELECT	33MF 20% 16V
R323	1-249-429-11	CARBON	10K 5% 1/4W	C106	1-101-004-00	CERAMIC	0.01MF 50V
R324	1-249-429-11	CARBON	10K 5% 1/4W	C108	1-124-034-51	ELECT	33MF 20% 16V
R325	1-249-422-11	CARBON	2.7K 5% 1/4W	C109	1-101-004-00	CERAMIC	0.01MF 50V
R327	1-215-453-00	METAL	22K 1% 1/6W	C110	1-101-004-00	CERAMIC	0.01MF 50V
R328	1-215-445-00	METAL	10K 1% 1/6W	C111	1-101-004-00	CERAMIC	0.01MF 50V
R336	1-215-477-00	METAL	220K 1% 1/6W	C112	1-101-004-00	CERAMIC	0.01MF 50V
R337	1-249-417-11	CARBON	1K 5% 1/4W	C113	1-101-004-00	CERAMIC	0.01MF 50V
R338	1-249-441-11	CARBON	100K 5% 1/4W	C114	1-123-356-00	ELECT	10MF 20% 16V
R340	1-249-429-11	CARBON	10K 5% 1/4W	C115	1-101-004-00	CERAMIC	0.01MF 50V
R341	1-215-469-00	METAL	100K 1% 1/6W	C116	1-101-004-00	CERAMIC	0.01MF 50V
R342	1-215-455-00	METAL	27K 1% 1/6W	C117	1-101-004-00	CERAMIC	0.01MF 50V
R343	1-215-488-00	METAL	620K 1% 1/6W	C118	1-123-356-00	ELECT	10MF 20% 16V
R344	1-249-434-11	CARBON	27K 5% 1/4W	C120	1-101-004-00	CERAMIC	0.01MF 50V
R346	1-249-417-11	CARBON	1K 5% 1/4W	C121	1-101-004-00	CERAMIC	0.01MF 50V
R347	1-249-405-11	CARBON	100 5% 1/4W	C122	1-101-004-00	CERAMIC	0.01MF 50V

*A-1135-361-A BJ BOARD, COMPLETE							

*4-353-708-00 HOOK, FINGER							
7-682-547-04 SCREW BVTT 3X6 (S)							
<u>CAPACITOR</u>							
C1	1-101-361-00	CERAMIC	150PF 5% 50V	D9	8-719-911-19	DIODE 1SS119	
				D11	8-719-016-42	DIODE MC932	
<u>DIODE</u>							
				D1	8-719-911-19	DIODE 1SS119	
				D2	8-719-911-19	DIODE 1SS119	
				D3	8-719-911-19	DIODE 1SS119	
				D7	8-719-911-19	DIODE 1SS119	
				D8	8-719-911-19	DIODE 1SS119	

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
<u>IC</u>							
IC1	8-759-345-38	IC HD14538BP		R46	1-249-441-11	CARBON	100K 5% 1/4W
IC2	8-759-240-01	IC TC14001BP		R47	1-247-862-11	CARBON	20K 5% 1/4W
IC3	8-759-240-40	IC TC4040BP		R48	1-215-467-00	METAL	82K 1% 1/6W
IC4	8-759-240-40	IC TC4040BP		R49	1-249-422-11	CARBON	2.7K 5% 1/4W
IC5	8-759-000-35	IC MC14027BCP		R50	1-215-469-00	METAL	100K 1% 1/6W
IC6	8-759-000-35	IC MC14027BCP		R51	1-215-445-00	METAL	10K 1% 1/6W
IC7	8-759-000-35	IC MC14027BCP		R52	1-247-885-00	CARBON	180K 5% 1/4W
IC8	8-759-000-35	IC MC14027BCP		R53	1-215-449-00	METAL	15K 1% 1/6W
IC9	8-759-000-35	IC MC14027BCP		R54	1-249-422-11	CARBON	2.7K 5% 1/4W
IC10	8-759-345-38	IC HD14538BP		R56	1-249-434-11	CARBON	27K 5% 1/4W
IC11	8-759-345-38	IC HD14538BP		R57	1-249-422-11	CARBON	2.7K 5% 1/4W
IC12	8-759-345-38	IC HD14538BP		R58	1-249-425-11	CARBON	4.7K 5% 1/4W
IC13	8-759-240-01	IC TC14001BP		R59	1-247-836-11	CARBON	1.6K 5% 1/4W
IC14	8-759-240-01	IC TC14001BP		R60	1-249-427-11	CARBON	6.8K 5% 1/4W
IC15	8-759-240-71	IC TC14071BP		R61	1-215-449-00	METAL	15K 1% 1/6W
IC16	8-759-040-11	IC MC14011BCP		R62	1-249-433-11	CARBON	22K 5% 1/4W
IC17	8-759-040-11	IC MC14011BCP		R63	1-249-425-11	CARBON	4.7K 5% 1/4W
IC18	8-759-000-32	IC MC14023BCP		R64	1-249-425-11	CARBON	4.7K 5% 1/4W
IC19	8-759-240-81	IC TC14081BP		R65	1-249-417-11	CARBON	1K 5% 1/4W
IC20	8-759-240-81	IC TC14081BP		R66	1-249-430-11	CARBON	12K 5% 1/4W
IC21	8-759-240-71	IC TC14071BP		R67	1-249-425-11	CARBON	4.7K 5% 1/4W
IC22	8-759-240-71	IC TC14071BP		R68	1-249-433-11	CARBON	22K 5% 1/4W
IC23	8-759-040-73	IC MC14073BCP		R69	1-249-425-11	CARBON	4.7K 5% 1/4W
IC24	8-759-240-69	IC MC14069UBCP		R70	1-249-417-11	CARBON	1K 5% 1/4W
IC25	8-759-240-69	IC MC14069UBCP		R71	1-249-430-11	CARBON	12K 5% 1/4W
IC26	8-759-041-75	IC MC14175BCP		R72	1-249-433-11	CARBON	22K 5% 1/4W
IC27	8-759-040-53	IC MC14053BCP		R74	1-249-430-11	CARBON	12K 5% 1/4W
IC28	8-759-000-77	IC MC14520BCP		R75	1-249-422-11	CARBON	2.7K 5% 1/4W
IC29	8-759-345-38	IC HD14538BP		R76	1-215-463-00	METAL	56K 1% 1/6W
<u>COIL</u>							
L1	1-408-098-00	INDUCTOR	560UH	R77	1-215-475-00	METAL	180K 1% 1/6W
L2	1-408-098-00	INDUCTOR	560UH	R78	1-215-439-00	METAL	5.6K 1% 1/6W
L3	1-408-100-00	INDUCTOR	680UH	R79	1-249-425-11	CARBON	4.7K 5% 1/4W
<u>TRANSISTOR</u>							
Q14	8-729-119-78	TRANSISTOR 2SC2785-HFE		R80	1-249-433-11	CARBON	22K 5% 1/4W
Q15	8-729-119-78	TRANSISTOR 2SC2785-HFE		R81	1-249-425-11	CARBON	4.7K 5% 1/4W
Q16	8-729-119-78	TRANSISTOR 2SC2785-HFE		R82	1-249-415-11	CARBON	680 5% 1/4W
Q17	8-729-119-78	TRANSISTOR 2SC2785-HFE		R83	1-249-417-11	CARBON	1K 5% 1/4W
Q18	8-729-119-78	TRANSISTOR 2SC2785-HFE		R85	1-249-430-11	CARBON	12K 5% 1/4W
Q19	8-729-119-76	TRANSISTOR 2SA1175-HFE		R87	1-249-422-11	CARBON	2.7K 5% 1/4W
Q20	8-729-119-78	TRANSISTOR 2SC2785-HFE		R89	1-247-887-00	CARBON	220K 5% 1/4W
Q21	8-729-119-78	TRANSISTOR 2SC2785-HFE		R90	1-249-441-11	CARBON	100K 5% 1/4W
Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE		R91	1-249-441-11	CARBON	100K 5% 1/4W
Q23	8-729-119-76	TRANSISTOR 2SA1175-HFE		R92	1-249-441-11	CARBON	100K 5% 1/4W
Q24	8-729-119-78	TRANSISTOR 2SC2785-HFE		R93	1-249-429-11	CARBON	10K 5% 1/4W
Q25	8-729-119-78	TRANSISTOR 2SC2785-HFE		R94	1-249-429-11	CARBON	10K 5% 1/4W
Q26	8-729-119-78	TRANSISTOR 2SC2785-HFE		R95	1-249-441-11	CARBON	100K 5% 1/4W
<u>RESISTOR</u>							
R2	1-215-439-00	METAL	5.6K 1% 1/6W	R96	1-249-417-11	CARBON	1K 5% 1/4W
R3	1-249-422-11	CARBON	2.7K 5% 1/4W	R100	1-249-423-11	CARBON	3.3K 5% 1/4W
R4	1-215-449-00	METAL	15K 1% 1/6W	R111	1-249-427-11	CARBON	6.8K 5% 1/4W
R5	1-249-441-11	CARBON	100K 5% 1/4W	R112	1-249-429-11	CARBON	10K 5% 1/4W
R6	1-249-425-11	CARBON	4.7K 5% 1/4W	R113	1-249-429-11	CARBON	10K 5% 1/4W
R7	1-215-439-00	METAL	5.6K 1% 1/6W	R114	1-249-422-11	CARBON	2.7K 5% 1/4W
R37	1-249-441-11	CARBON	100K 5% 1/4W	R115	1-249-419-11	CARBON	1.5K 5% 1/4W
R38	1-215-454-00	METAL	24K 1% 1/6W	R116	1-249-427-11	CARBON	6.8K 5% 1/4W
R39	1-249-422-11	CARBON	2.7K 5% 1/4W	R117	1-249-429-11	CARBON	10K 5% 1/4W
R42	1-249-433-11	CARBON	22K 5% 1/4W	R118	1-249-429-11	CARBON	10K 5% 1/4W
R43	1-247-876-11	CARBON	75K 5% 1/4W	R119	1-249-422-11	CARBON	2.7K 5% 1/4W
R44	1-249-429-11	CARBON	10K 5% 1/4W	R120	1-249-419-11	CARBON	1.5K 5% 1/4W
R45	1-249-441-11	CARBON	100K 5% 1/4W	R121	1-249-417-11	CARBON	1K 5% 1/4W
				R122	1-249-417-11	CARBON	1K 5% 1/4W
				R123	1-249-413-11	CARBON	470 5% 1/4W
				R124	1-249-417-11	CARBON	1K 5% 1/4W
				R125	1-249-417-11	CARBON	1K 5% 1/4W
				R126	1-249-417-11	CARBON	1K 5% 1/4W
				R127	1-249-417-11	CARBON	1K 5% 1/4W
				R128	1-249-417-11	CARBON	1K 5% 1/4W



Ref.No	Part No.	Description	Remark			Ref.No	Part No.	Description	Remark		
R129	1-249-417-11	CARBON	1K	5%	1/4W	C85	1-123-939-00	ELECT	10MF	20%	200V
<u>VARIABLE RESISTOR</u>											
RV1	1-237-504-21	RES, ADJ, CERMET 20K				C86	1-123-939-00	ELECT	10MF	20%	200V
RV3	1-237-504-21	RES, ADJ, CERMET 20K				C87	1-123-939-00	ELECT	10MF	20%	200V
RV4	1-237-503-21	RES, ADJ, CERMET 10K				C88	1-123-939-00	ELECT	10MF	20%	200V
RV5	1-237-506-21	RES, ADJ, CERMET 100K				C91	1-102-050-00	CERAMIC	0.01MF	99%	500V
RV6	1-237-505-21	RES, ADJ, CERMET 50K				C92	1-102-050-00	CERAMIC	0.01MF	99%	500V
RV7	1-237-504-21	RES, ADJ, CERMET 20K				C93	1-102-050-00	CERAMIC	0.01MF	99%	500V
RV8	1-237-504-21	RES, ADJ, CERMET 20K				C100	1-136-165-00	FILM	0.1MF	5%	50V
RV9	1-237-505-21	RES, ADJ, CERMET 50K				C102	1-124-046-00	ELECT	10MF	20%	160V
<u>SWITCH</u>											
S1	1-570-857-11	SWITCH, SLIDE				C103	1-102-976-00	CERAMIC	180PF	5%	50V

*A-1135-464-A BK BOARD, COMPLETE											

2-365-226-00	HEAT SINK					C104	1-136-110-00	FILM	0.91MF	5%	200V
4-370-970-01	SPACER, TR					C105	1-124-034-51	ELECT	33MF	20%	16V
4-379-411-01	RETAINER (BK), TR					C106	1-124-910-11	ELECT	47MF	20%	25V
4-902-345-01	HEAT SINK					C107	1-101-004-00	CERAMIC	0.01MF	5%	50V
7-682-948-01	SCREW PSW 3X8					C108	1-106-371-00	MYLAR	0.015MF	10%	200V
7-685-646-79	SCREW BVTP 3X8 TYPE2 IT-3					C109	1-124-046-00	ELECT	10MF	20%	160V
<u>CONNECTOR</u>											
BK1	*1-566-056-11	PIN, CONNECTOR 4P				C110	1-102-973-00	CERAMIC	100PF	5%	50V
BK2	*1-566-056-11	PIN, CONNECTOR 4P				C111	1-102-965-00	CERAMIC	39PF	5%	50V
BK3	*1-566-056-11	PIN, CONNECTOR 4P				C112	1-102-942-00	CERAMIC	5PF	1PF	50V
BK4	*1-566-055-11	PIN, CONNECTOR 3P				C114	1-102-936-00	CERAMIC	3PF	0.25PF	50V
BK5	*1-566-057-11	PIN, CONNECTOR 5P				C115	1-101-880-00	CERAMIC	47PF	5%	50V
BK6	*1-566-056-11	PIN, CONNECTOR 4P				C133	1-102-942-00	CERAMIC	5PF	1PF	50V
BK7	*1-566-056-11	PIN, CONNECTOR 4P				C200	1-136-165-00	FILM	0.1MF	5%	50V
BK8	*1-566-056-11	PIN, CONNECTOR 4P				C202	1-124-046-00	ELECT	10MF	20%	160V
<u>CAPACITOR</u>											
C1	1-130-483-00	MYLAR	0.01MF	5%	50V	C203	1-102-976-00	CERAMIC	180PF	5%	50V
C10	1-124-046-00	ELECT	10MF	20%	160V	C204	1-136-110-00	FILM	0.91MF	5%	200V
C11	1-130-483-00	MYLAR	0.01MF	5%	50V	C205	1-124-034-51	ELECT	33MF	20%	16V
C51	1-101-004-00	CERAMIC	0.01MF			C206	1-124-910-11	ELECT	47MF	20%	25V
C52	1-101-004-00	CERAMIC	0.01MF			C207	1-101-004-00	CERAMIC	0.01MF	5%	50V
C53	1-101-004-00	CERAMIC	0.01MF			C208	1-106-371-00	MYLAR	0.015MF	10%	200V
C54	1-101-004-00	CERAMIC	0.01MF			C209	1-124-046-00	ELECT	10MF	20%	160V
C55	1-101-004-00	CERAMIC	0.01MF			C210	1-102-973-00	CERAMIC	100PF	5%	50V
C56	1-101-004-00	CERAMIC	0.01MF			C211	1-102-965-00	CERAMIC	39PF	5%	50V
C64	1-124-034-51	ELECT	33MF	20%	16V	C212	1-102-942-00	CERAMIC	5PF	1PF	50V
C65	1-124-034-51	ELECT	33MF	20%	16V	C214	1-102-936-00	CERAMIC	3PF	0.25PF	50V
C66	1-124-034-51	ELECT	33MF	20%	16V	C215	1-101-880-00	CERAMIC	47PF	5%	50V
C67	1-124-034-51	ELECT	33MF	20%	16V	C233	1-102-942-00	CERAMIC	5PF	1PF	50V
C68	1-124-034-51	ELECT	33MF	20%	16V	C300	1-136-165-00	FILM	0.1MF	5%	50V
C69	1-124-034-51	ELECT	33MF	20%	16V	C302	1-124-046-00	ELECT	10MF	20%	160V
C70	1-124-034-51	ELECT	33MF	20%	16V	C303	1-102-976-00	CERAMIC	180PF	5%	50V
C71	1-124-034-51	ELECT	33MF	20%	16V	C304	1-136-110-00	FILM	0.91MF	5%	200V
C72	1-124-034-51	ELECT	33MF	20%	16V	C305	1-124-034-51	ELECT	33MF	20%	16V
C73	1-124-034-51	ELECT	33MF	20%	16V	C306	1-124-910-11	ELECT	47MF	20%	25V
C74	1-124-034-51	ELECT	33MF	20%	16V	C307	1-101-004-00	CERAMIC	0.01MF	5%	50V
C75	1-124-034-51	ELECT	33MF	20%	16V	C308	1-106-371-00	MYLAR	0.015MF	10%	200V
C76	1-124-034-51	ELECT	33MF	20%	16V	C309	1-124-046-00	ELECT	10MF	20%	160V
C80	1-124-046-00	ELECT	10MF	20%	160V	C310	1-102-973-00	CERAMIC	100PF	5%	50V
C81	1-124-046-00	ELECT	10MF	20%	160V	C311	1-102-965-00	CERAMIC	39PF	5%	50V
C82	1-124-046-00	ELECT	10MF	20%	160V	C312	1-102-942-00	CERAMIC	5PF	1PF	50V
C83	1-123-939-00	ELECT	10MF	20%	200V	C314	1-102-936-00	CERAMIC	3PF	0.25PF	50V
C84	1-123-939-00	ELECT	10MF	20%	200V	C315	1-101-880-00	CERAMIC	47PF	5%	50V
<u>TRIMMER</u>											
CV101	1-141-179-12	CAP, VAR, TRIMMER				C333	1-102-942-00	CERAMIC	5PF	1PF	50V
CV102	1-141-171-00	CAP, TRIMMER 15P				C335	1-141-179-12	CAP, VAR, TRIMMER			
CV201	1-141-179-12	CAP, VAR, TRIMMER				CV301	1-141-179-12	CAP, VAR, TRIMMER			
CV202	1-141-171-00	CAP, TRIMMER 15P				CV302	1-141-171-00	CAP, TRIMMER 15P			
<u>DIODE</u>											
D1	8-719-911-19	DIODE 1SS119				D2	8-719-911-19	DIODE ISS119			
D101	8-719-911-19	DIODE 1SS119				D102	8-719-911-19	DIODE 1SS119			

BK

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark				
D102	8-719-911-19	DIODE 1SS119		Q111	8-729-804-63	TRANSISTOR 2SA1406-E					
D103	8-719-911-19	DIODE 1SS119		Q112	8-729-255-12	TRANSISTOR 2SC2551-O					
D104	8-719-911-19	DIODE 1SS119		Q113	8-729-119-78	TRANSISTOR 2SC2785-HFE					
D105	8-719-911-19	DIODE 1SS119		Q114	8-729-119-78	TRANSISTOR 2SC2785-HFE					
D106	8-719-911-19	DIODE 1SS119		Q115	8-729-119-78	TRANSISTOR 2SC2785-HFE					
D107	8-719-911-19	DIODE 1SS119		Q201	8-729-266-82	TRANSISTOR 2SC2668-O					
D108	8-719-911-19	DIODE 1SS119		Q202	8-729-384-48	TRANSISTOR 2SA844					
D109	8-719-901-83	DIODE 1SS83		Q203	8-729-119-78	TRANSISTOR 2SC2785-HFE					
D110	8-719-300-80	DIODE RU-1C		Q204	8-729-119-78	TRANSISTOR 2SC2785-HFE					
D111	8-719-300-80	DIODE RU-1C		Q205	8-729-384-48	TRANSISTOR 2SA844					
D112	8-719-911-19	DIODE 1SS119		Q206	8-729-804-63	TRANSISTOR 2SA1406-E					
D113	8-719-911-19	DIODE 1SS119		Q207	8-729-804-58	TRANSISTOR 2SC3600-E					
D114	8-719-911-19	DIODE 1SS119		Q208	8-729-804-58	TRANSISTOR 2SC3600-E					
D115	8-719-911-19	DIODE 1SS119		Q209	8-729-804-63	TRANSISTOR 2SA1406-E					
D116	8-719-911-19	DIODE 1SS119		Q210	8-729-804-58	TRANSISTOR 2SC3600-E					
D201	8-719-911-19	DIODE 1SS119		Q211	8-729-804-63	TRANSISTOR 2SA1406-E					
D202	8-719-911-19	DIODE 1SS119		Q212	8-729-255-12	TRANSISTOR 2SC2551-O					
D203	8-719-911-19	DIODE 1SS119		Q213	8-729-119-78	TRANSISTOR 2SC2785-HFE					
D204	8-719-911-19	DIODE 1SS119		Q214	8-729-119-78	TRANSISTOR 2SC2785-HFE					
D205	8-719-911-19	DIODE 1SS119		Q215	8-729-119-78	TRANSISTOR 2SC2785-HFE					
D206	8-719-911-19	DIODE 1SS119		Q301	8-729-266-82	TRANSISTOR 2SC2668-O					
D207	8-719-911-19	DIODE 1SS119		Q302	8-729-384-48	TRANSISTOR 2SA844					
D208	8-719-911-19	DIODE 1SS119		Q303	8-729-119-78	TRANSISTOR 2SC2785-HFE					
D209	8-719-901-83	DIODE 1SS83		Q304	8-729-119-78	TRANSISTOR 2SC2785-HFE					
D210	8-719-300-80	DIODE RU-1C		Q305	8-729-384-48	TRANSISTOR 2SA844					
D211	8-719-300-80	DIODE RU-1C		Q306	8-729-804-63	TRANSISTOR 2SA1406-E					
D212	8-719-911-19	DIODE 1SS119		Q307	8-729-804-58	TRANSISTOR 2SC3600-E					
D213	8-719-911-19	DIODE 1SS119		Q308	8-729-804-58	TRANSISTOR 2SC3600-E					
D214	8-719-911-19	DIODE 1SS119		Q309	8-729-804-63	TRANSISTOR 2SA1406-E					
D215	8-719-911-19	DIODE 1SS119		Q310	8-729-804-58	TRANSISTOR 2SC3600-E					
D216	8-719-911-19	DIODE 1SS119		Q311	8-729-804-63	TRANSISTOR 2SA1406-E					
D301	8-719-911-19	DIODE 1SS119		Q312	8-729-255-12	TRANSISTOR 2SC2551-O					
D302	8-719-911-19	DIODE 1SS119		Q313	8-729-119-78	TRANSISTOR 2SC2785-HFE					
D303	8-719-911-19	DIODE 1SS119		Q314	8-729-119-78	TRANSISTOR 2SC2785-HFE					
D304	8-719-911-19	DIODE 1SS119		Q315	8-729-119-78	TRANSISTOR 2SC2785-HFE					
D305	8-719-911-19	DIODE 1SS119		RESISTOR							
D306	8-719-911-19	DIODE 1SS119		R1	1-249-429-11	CARBON	10K	5%	1/4W		
D307	8-719-911-19	DIODE 1SS119		R2	1-249-441-11	CARBON	100K	5%	1/4W		
D308	8-719-911-19	DIODE 1SS119		R3	1-249-417-11	CARBON	1K	5%	1/4W		
D309	8-719-901-83	DIODE 1SS83		R10	1-215-878-00	METAL OXIDE	33K	5%	1W F		
D310	8-719-300-80	DIODE RU-1C		R11	1-249-439-11	CARBON	68K	5%	1/4W		
D311	8-719-300-80	DIODE RU-1C		R12	1-249-417-11	CARBON	1K	5%	1/4W		
D312	8-719-911-19	DIODE 1SS119		R13	1-249-429-11	CARBON	10K	5%	1/4W		
D313	8-719-911-19	DIODE 1SS119		R14	1-215-469-00	METAL	100K	1%	1/6W		
D314	8-719-911-19	DIODE 1SS119		R15	1-215-461-00	METAL	47K	1%	1/6W		
D315	8-719-911-19	DIODE 1SS119		R16	1-215-447-00	METAL	12K	1%	1/6W		
D316	8-719-911-19	DIODE 1SS119		R101	1-215-391-00	METAL	56	1%	1/6W		
IC						R102	1-249-419-11	CARBON	1.5K	5%	1/4W
IC1	8-759-945-58	IC RC4558P		R104	1-249-405-11	CARBON	100	5%	1/4W		
TRANSISTOR						R105	1-249-424-11	CARBON	3.9K	5%	1/4W
Q1	8-729-384-48	TRANSISTOR 2SA844		R106	1-249-422-11	CARBON	2.7K	5%	1/4W		
Q12	8-729-200-17	TRANSISTOR 2SA1091-O		R107	1-249-405-11	CARBON	100	5%	1/4W		
Q13	8-729-200-17	TRANSISTOR 2SA1091-O		R108	1-249-405-11	CARBON	100	5%	1/4W		
Q101	8-729-266-82	TRANSISTOR 2SC2668-O		R109	1-249-421-11	CARBON	2.2K	5%	1/4W		
Q102	8-729-384-48	TRANSISTOR 2SA844		R110	1-249-405-11	CARBON	100	5%	1/4W		
Q103	8-729-119-78	TRANSISTOR 2SC2785-HFE		R111	1-249-405-11	CARBON	100	5%	1/4W		
Q104	8-729-119-78	TRANSISTOR 2SC2785-HFE		R112	1-215-391-00	METAL	56	1%	1/6W		
Q105	8-729-384-48	TRANSISTOR 2SA844		R113	1-215-391-00	METAL	56	1%	1/6W		
Q106	8-729-804-63	TRANSISTOR 2SA1406-E		R114	1-215-437-00	METAL	4.7K	1%	1/6W		
Q107	8-729-804-58	TRANSISTOR 2SC3600-E		R115	1-214-765-00	METAL	33K	1%	1/4W		
Q108	8-729-804-58	TRANSISTOR 2SC3600-E		R116	1-214-765-00	METAL	33K	1%	1/4W		
Q109	8-729-804-63	TRANSISTOR 2SA1406-E		R117	1-249-405-11	CARBON	100	5%	1/4W		
Q110	8-729-804-58	TRANSISTOR 2SC3600-E		R118	1-214-781-00	METAL	150K	1%	1/4W		
				R119	1-215-447-00	METAL	12K	1%	1/6W		
				R120	1-216-430-11	METAL OXIDE	390	5%	1W F		





Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark				
R121	1-249-405-11	CARBON	100 5% 1/4W	R301	1-215-391-00	METAL	56 1% 1/6W				
R122	1-249-405-11	CARBON	100 5% 1/4W	R302	1-249-419-11	CARBON	1.5K 5% 1/4W				
R123	1-215-405-00	METAL	220 1% 1/6W	R304	1-249-405-11	CARBON	100 5% 1/4W				
R124	1-249-405-11	CARBON	100 5% 1/4W	R305	1-249-424-11	CARBON	3.9K 5% 1/4W				
R125	1-249-405-11	CARBON	100 5% 1/4W	R306	1-249-422-11	CARBON	2.7K 5% 1/4W				
R126	1-215-394-00	METAL	75 1% 1/4W	R307	1-249-405-11	CARBON	100 5% 1/4W				
R127	1-215-394-00	METAL	75 1% 1/4W	R308	1-249-405-11	CARBON	100 5% 1/4W				
R128	1-214-779-00	METAL	120K 1% 1/4W	R309	1-249-421-11	CARBON	2.2K 5% 1/4W				
R129	1-249-430-11	CARBON	12K 5% 1/4W	R310	1-249-405-11	CARBON	100 5% 1/4W				
R130	1-216-443-11	METAL OXIDE	56K 5% 1W F	R311	1-249-405-11	CARBON	100 5% 1/4W				
R131	1-249-433-11	CARBON	22K 5% 1/4W	R312	1-215-391-00	METAL	56 1% 1/6W				
R132	1-249-422-11	CARBON	2.7K 5% 1/4W	R313	1-215-391-00	METAL	56 1% 1/6W				
R133	1-249-435-11	CARBON	33K 5% 1/4W	R314	1-215-437-00	METAL	4.7K 1% 1/6W				
R134	1-249-433-11	CARBON	22K 5% 1/4W	R315	1-214-765-00	METAL	33K 1% 1/4W				
R135	1-249-426-11	CARBON	5.6K 5% 1/4W	R316	1-214-765-00	METAL	33K 1% 1/4W				
R136	1-249-423-11	CARBON	3.3K 5% 1/4W	R317	1-249-405-11	CARBON	100 5% 1/4W				
R137	1-247-903-00	CARBON	1M 5% 1/4W	R318	1-214-781-00	METAL	150K 1% 1/4W				
R138	1-249-426-11	CARBON	5.6K 5% 1/4W	R319	1-215-447-00	METAL	12K 1% 1/6W				
R139	1-215-441-00	METAL	6.8K 1% 1/6W	R320	1-216-430-11	METAL OXIDE	390 5% 1W F				
R140	1-249-405-11	CARBON	100 5% 1/4W	R321	1-249-405-11	CARBON	100 5% 1/4W				
R141	1-249-413-11	CARBON	470 5% 1/4W	R322	1-249-405-11	CARBON	100 5% 1/4W				
R142	1-249-390-11	CARBON	5.6 5% 1/4W	R323	1-215-405-00	METAL	220 1% 1/6W				
R143	1-249-422-11	CARBON	2.7K 5% 1/4W	R324	1-249-405-11	CARBON	100 5% 1/4W				
R201	1-215-391-00	METAL	56 1% 1/6W	R325	1-249-405-11	CARBON	100 5% 1/4W				
R202	1-249-419-11	CARBON	1.5K 5% 1/4W	R326	1-215-394-00	METAL	75 1% 1/6W				
R204	1-249-405-11	CARBON	100 5% 1/4W	R327	1-215-394-00	METAL	75 1% 1/6W				
R205	1-249-424-11	CARBON	3.9K 5% 1/4W	R328	1-214-779-00	METAL	120K 1% 1/4W				
R206	1-249-422-11	CARBON	2.7K 5% 1/4W	R329	1-249-430-11	CARBON	12K 5% 1/4W				
R207	1-249-405-11	CARBON	100 5% 1/4W	R330	1-216-443-11	METAL OXIDE	56K 5% 1W F				
R208	1-249-405-11	CARBON	100 5% 1/4W	R331	1-249-433-11	CARBON	22K 5% 1/4W				
R209	1-249-421-11	CARBON	2.2K 5% 1/4W	R332	1-249-422-11	CARBON	2.7K 5% 1/4W				
R210	1-249-405-11	CARBON	100 5% 1/4W	R333	1-249-435-11	CARBON	33K 5% 1/4W				
R211	1-249-405-11	CARBON	100 5% 1/4W	R334	1-249-433-11	CARBON	22K 5% 1/4W				
R212	1-215-391-00	METAL	56 1% 1/6W	R335	1-249-426-11	CARBON	5.6K 5% 1/4W				
R213	1-215-391-00	METAL	56 1% 1/6W	R336	1-249-423-11	CARBON	3.3K 5% 1/4W				
R214	1-215-437-00	METAL	4.7K 1% 1/6W	R337	1-247-903-00	CARBON	1M 5% 1/4W				
R215	1-214-765-00	METAL	33K 1% 1/4W	R338	1-249-426-11	CARBON	5.6K 5% 1/4W				
R216	1-214-765-00	METAL	33K 1% 1/4W	R339	1-215-441-00	METAL	6.8K 1% 1/6W				
R217	1-249-405-11	CARBON	100 5% 1/4W	R340	1-249-405-11	CARBON	100 5% 1/4W				
R218	1-214-781-00	METAL	150K 1% 1/4W	R341	1-249-413-11	CARBON	470 5% 1/4W				
R219	1-215-447-00	METAL	12K 1% 1/6W F	R342	1-249-390-11	CARBON	5.6 5% 1/4W				
R220	1-216-430-11	METAL OXIDE	390 5% 1W F	R343	1-249-422-11	CARBON	2.7K 5% 1/4W				
R221	1-249-405-11	CARBON	100 5% 1/4W	*****							
R222	1-249-405-11	CARBON	100 5% 1/4W	*A-1135-472-A BR BOARD, COMPLETE							
R223	1-215-405-00	METAL	220 1% 1/6W	*****							
R224	1-249-405-11	CARBON	100 5% 1/4W	(BVM-2010PD/PMD ONLY)							
R225	1-249-405-11	CARBON	100 5% 1/4W	*****							
R226	1-215-394-00	METAL	75 1% 1/6W	4-353-708-00 HOOK, FINGER							
R227	1-215-394-00	METAL	75 1% 1/6W	7-682-547-04 SCREW BT7 3X6 (S)							
R228	1-214-779-00	METAL	120K 1% 1/4W	*****							
R229	1-249-430-11	CARBON	12K 5% 1/4W	CONNECTOR							
R230	1-216-443-11	METAL OXIDE	56K 5% 1W F	BR1 *1-566-060-11 PIN, CONNECTOR 8P							
R231	1-249-433-11	CARBON	22K 5% 1/4W	BR101 *1-566-054-11 PIN, CONNECTOR 2P							
R232	1-249-422-11	CARBON	2.7K 5% 1/4W	BR201 *1-566-054-11 PIN, CONNECTOR 2P							
R233	1-249-435-11	CARBON	33K 5% 1/4W	BR301 *1-566-054-11 PIN, CONNECTOR 2P							
R234	1-249-433-11	CARBON	22K 5% 1/4W	CAPACITOR							
R235	1-249-426-11	CARBON	5.6K 5% 1/4W	C1 1-101-004-00 CERAMIC 0.01MF 50V							
R236	1-249-423-11	CARBON	3.3K 5% 1/4W	C2 1-101-004-00 CERAMIC 0.01MF 50V							
R237	1-247-903-00	CARBON	1M 5% 1/4W	C3 1-101-004-00 CERAMIC 0.01MF 50V							
R238	1-249-426-11	CARBON	5.6K 5% 1/4W	C4 1-102-973-00 CERAMIC 100PF 5% 50V							
R239	1-215-441-00	METAL	6.8K 1% 1/6W	C5 1-124-034-51 ELECT 33MF 20% 16V							
R240	1-249-405-11	CARBON	100 5% 1/4W	C6 1-124-034-51 ELECT 33MF 20% 16V							
R241	1-249-413-11	CARBON	470 5% 1/4W	C7 1-102-973-00 CERAMIC 100PF 5% 50V							
R242	1-249-390-11	CARBON	5.6 5% 1/4W	C8 1-124-034-51 ELECT 33MF 20% 16V							
R243	1-249-422-11	CARBON	2.7K 5% 1/4W	*****							

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C9	1-124-034-51	ELECT	33MF 20% 16V	D7	8-719-911-19	DIODE 1SS119	
C10	1-101-888-00	CERAMIC	68PF 5% 50V	D8	8-719-911-19	DIODE 1SS119	
C11	1-102-960-00	CERAMIC	24PF 5% 50V	D9	8-719-911-19	DIODE 1SS119	
C12	1-102-856-	CERAMIC	5PF 0.5PF 50V	D10	8-719-911-19	DIODE 1SS119	
C13	1-124-122-11	ELECT	100MF 20% 16V	D11	8-719-911-19	DIODE 1SS119	
C14	1-101-004-00	CERAMIC	0.01MF 50V	D102	8-719-911-19	DIODE 1SS119	
C101	1-102-937-00	CERAMIC	4PF 0.25PF 50V	D202	8-719-911-19	DIODE 1SS119	
C102	1-102-937-00	CERAMIC	4PF 0.25PF 50V	D301	8-719-109-74	DIODE RD4.3ES-B1	
C103	1-101-880-00	CERAMIC	47PF 5% 50V	D302	8-719-911-19	DIODE 1SS119	
C201	1-102-937-00	CERAMIC	4PF 0.25PF 50V				IC
C202	1-102-937-00	CERAMIC	4PF 0.25PF 50V	IC1	8-759-040-53	IC TC14053BCP	
C203	1-101-880-00	CERAMIC	47PF 5% 50V	IC101	8-759-603-24	IC CX20197	
C301	1-101-880-00	CERAMIC	47PF 5% 50V	IC201	8-759-603-24	IC CX20197	
C302	1-124-122-11	ELECT	100MF 20% 16V				COIL
C303	1-124-122-11	ELECT	100MF 20% 16V	L1	1-408-417-00	INDUCTOR	47UH
C400	1-124-122-11	ELECT	100MF 20% 16V	L2	1-408-413-00	INDUCTOR	22UH
C401	1-123-356-00	ELECT	10MF 20% 16V				TRANSISTOR
C402	1-123-356-00	ELECT	10MF 20% 16V	Q1	8-729-900-89	TRANSISTOR DTC144ES	
C403	1-123-356-00	ELECT	10MF 20% 16V	Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE	
C404	1-123-356-00	ELECT	10MF 20% 16V	Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE	
C405	1-123-356-00	ELECT	10MF 20% 16V	Q4	8-729-119-78	TRANSISTOR 2SC2785-HFE	
C406	1-123-356-00	ELECT	10MF 20% 16V	Q5	8-729-119-78	TRANSISTOR 2SC2785-HFE	
C407	1-123-356-00	ELECT	10MF 20% 16V	Q6	8-729-119-76	TRANSISTOR 2SA1175-HFE	
C408	1-123-356-00	ELECT	10MF 20% 16V	Q7	8-729-119-76	TRANSISTOR 2SA1175-HFE	
C411	1-101-004-00	CERAMIC	0.01MF 50V	Q9	8-729-900-89	TRANSISTOR DTC144ES	
C412	1-101-004-00	CERAMIC	0.01MF 50V	Q10	8-729-900-89	TRANSISTOR DTC144ES	
C413	1-101-004-00	CERAMIC	0.01MF 50V	Q11	8-729-800-10	TRANSISTOR 2SC3068	
C414	1-101-004-00	CERAMIC	0.01MF 50V	Q12	8-729-900-89	TRANSISTOR DTC144ES	
C415	1-101-004-00	CERAMIC	0.01MF 50V	Q101	8-729-119-76	TRANSISTOR 2SA1175-HFE	
C416	1-101-004-00	CERAMIC	0.01MF 50V	Q104	8-729-119-76	TRANSISTOR 2SA1175-HFE	
C417	1-101-004-00	CERAMIC	0.01MF 50V	Q105	8-729-800-10	TRANSISTOR 2SC3068	
C418	1-101-004-00	CERAMIC	0.01MF 50V	Q201	8-729-119-76	TRANSISTOR 2SA1175-HFE	
C419	1-101-004-00	CERAMIC	0.01MF 50V	Q204	8-729-119-76	TRANSISTOR 2SA1175-HFE	
C421	1-123-356-00	ELECT	10MF 20% 16V	Q205	8-729-800-10	TRANSISTOR 2SC3068	
C422	1-123-356-00	ELECT	10MF 20% 16V	Q301	8-729-119-78	TRANSISTOR 2SC2785-HFE	
C426	1-101-004-00	CERAMIC	0.01MF 50V	Q302	8-729-119-76	TRANSISTOR 2SA1175-HFE	
C427	1-101-004-00	CERAMIC	0.01MF 50V	Q303	8-729-119-78	TRANSISTOR 2SC2785-HFE	
C430	1-124-122-11	ELECT	100MF 20% 16V	Q304	8-729-119-76	TRANSISTOR 2SA1175-HFE	
C431	1-123-356-00	ELECT	10MF 20% 16V	Q305	8-729-800-10	TRANSISTOR 2SC3068	
C432	1-123-356-00	ELECT	10MF 20% 16V				RESISTOR
C433	1-123-356-00	ELECT	10MF 20% 16V	R1	1-249-429-11	CARBON	10K 5% 1/4W
C434	1-123-356-00	ELECT	10MF 20% 16V	R2	1-249-429-11	CARBON	10K 5% 1/4W
C435	1-123-356-00	ELECT	10MF 20% 16V	R3	1-249-429-11	CARBON	10K 5% 1/4W
C436	1-123-356-00	ELECT	10MF 20% 16V	R4	1-249-429-11	CARBON	10K 5% 1/4W
C437	1-123-356-00	ELECT	10MF 20% 16V	R5	1-249-429-11	CARBON	10K 5% 1/4W
C441	1-101-004-00	CERAMIC	0.01MF 50V	R6	1-249-417-11	CARBON	1K 5% 1/4W
C442	1-101-004-00	CERAMIC	0.01MF 50V	R7	1-249-422-11	CARBON	2.7K 5% 1/4W
C443	1-101-004-00	CERAMIC	0.01MF 50V	R8	1-249-417-11	CARBON	1K 5% 1/4W
C444	1-101-004-00	CERAMIC	0.01MF 50V	R9	1-215-461-00	METAL	47K 1% 1/4W
C445	1-101-004-00	CERAMIC	0.01MF 50V	R10	1-215-463-00	METAL	56K 1% 1/6W
C446	1-101-004-00	CERAMIC	0.01MF 50V	R11	1-249-419-11	CARBON	1.5K 5% 1/4W
C447	1-101-004-00	CERAMIC	0.01MF 50V	R12	1-249-417-11	CARBON	1K 5% 1/4W
C451	1-123-356-00	ELECT	10MF 20% 16V	R13	1-249-422-11	CARBON	2.7K 5% 1/4W
C452	1-101-004-00	CERAMIC	0.01MF 50V	R14	1-215-461-00	METAL	47K 1% 1/6W
				R15	1-215-435-00	METAL	3.9K 1% 1/6W
<u>TRIMMER</u>				R16	1-215-463-00	METAL	56K 1% 1/6W
CV301	1-141-171-00	CAP,TRIMMER 15P		R17	1-249-419-11	CARBON	1.5K 5% 1/4W
<u>DIODE</u>				R18	1-215-430-00	METAL	2.4K 1% 1/6W
D1	8-719-911-19	DIODE 1SS119		R19	1-215-430-00	METAL	2.4K 1% 1/6W
D2	8-719-911-19	DIODE 1SS119		R20	1-215-424-00	METAL	1.3K 1% 1/6W
D3	8-719-911-19	DIODE 1SS119		R21	1-215-450-00	METAL	16K 1% 1/6W
D4	8-719-911-19	DIODE 1SS119					
D5	8-719-911-19	DIODE 1SS119					
D6	8-719-911-19	DIODE 1SS119					

BR C DA

The components identified by shading and mark are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description	Remark
R22	1-249-422-11	CARBON	27K 5% 1/4W
R23	1-249-425-11	CARBON	47K 5% 1/4W
R24	1-249-427-11	CARBON	6.8K 5% 1/4W
R25	1-249-423-11	CARBON	3.3K 5% 1/4W
R27	1-249-437-11	CARBON	47K 5% 1/4W
R28	1-249-429-11	CARBON	10K 5% 1/4W
R29	1-249-425-11	CARBON	47K 5% 1/4W
R30	1-249-425-11	CARBON	4.7K 5% 1/4W
R101	1-249-405-11	CARBON	100 5% 1/4W
R102	1-249-422-11	CARBON	27K 5% 1/4W
R103	1-215-429-00	METAL	2.2K 1% 1/6W
R104	1-215-429-00	METAL	2.2K 1% 1/6W
R105	1-215-429-00	METAL	2.2K 1% 1/6W
R106	1-215-429-00	METAL	2.2K 1% 1/6W
R113	1-249-425-11	CARBON	47K 5% 1/4W
R114	1-249-437-11	CARBON	47K 5% 1/4W
R115	1-249-405-11	CARBON	100 5% 1/4W
R201	1-249-405-11	CARBON	100 5% 1/4W
R202	1-249-422-11	CARBON	27K 5% 1/4W
R203	1-215-429-00	METAL	2.2K 1% 1/6W
R204	1-215-429-00	METAL	2.2K 1% 1/6W
R205	1-215-429-00	METAL	2.2K 1% 1/6W
R206	1-215-429-00	METAL	2.2K 1% 1/6W
R213	1-249-425-11	CARBON	4.7K 5% 1/4W
R214	1-249-437-11	CARBON	47K 5% 1/4W
R215	1-249-405-11	CARBON	100 5% 1/4W
R301	1-249-405-11	CARBON	100 5% 1/4W
R302	1-249-422-11	CARBON	27K 5% 1/4W
R303	1-215-421-00	METAL	1K 1% 1/6W
R304	1-215-421-00	METAL	1K 1% 1/6W
R305	1-215-441-00	METAL	6.8K 1% 1/6W
R306	1-215-417-00	METAL	680 1% 1/6W
R307	1-247-850-11	CARBON	6.2K 5% 1/4W
R308	1-215-431-00	METAL	2.7K 1% 1/6W
R309	1-249-422-11	CARBON	2.7K 5% 1/4W
R310	1-249-405-11	CARBON	100 5% 1/4W
R311	1-249-437-11	CARBON	47K 5% 1/4W
R312	1-249-437-11	CARBON	47K 5% 1/4W
R313	1-249-425-11	CARBON	4.7K 5% 1/4W
R314	1-249-437-11	CARBON	47K 5% 1/4W
R315	1-249-405-11	CARBON	100 5% 1/4W

VARIABLE RESISTOR

RV1	1-237-500-21	RES, ADJ, CERMET 1K
RV101	1-237-502-21	RES, ADJ, CERMET 5K
RV102	1-237-500-21	RES, ADJ, CERMET 1K
RV201	1-237-502-21	RES, ADJ, CERMET 5K
RV202	1-237-500-21	RES, ADJ, CERMET 1K
RV301	1-237-502-21	RES, ADJ, CERMET 5K

SWITCH

S1	1-570-857-11	SWITCH, SLIDE
S2	1-570-857-11	SWITCH, SLIDE
S3	1-570-851-11	SWITCH, SLIDE

*1-617-889-11 C BOARD

1-526-771-11 SOCKET, CRT

1-556-880-81 LEAD ASSY, HIGH-VOLTAGE

CAPACITOR

C1	1-162-114-00	CERAMIC	0.0047MF	2KV
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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C15	1-130-479-00	MYLAR	0.0047MF 5% 50V	C100	1-136-165-00	FILM	0.1MF 5% 50V
C16	1-124-589-11	ELECT	47MF 20% 16V	C101	1-136-165-00	FILM	0.1MF 5% 50V
C17	1-124-234-00	ELECT	22MF 20% 16V	C102	1-102-978-00	CERAMIC	220PF 5% 50V
C18	1-124-234-00	ELECT	22MF 20% 16V				
C19	1-161-051-00	CERAMIC	0.01MF 10% 50V				
							<u>DIODE</u>
C20	1-130-871-11	FILM	0.01MF 5% 50V	D1	8-719-911-19	DIODE 1SS119	
C21	1-126-301-11	ELECT	1MF 20% 50V	D2	8-719-911-19	DIODE 1SS119	
C22	1-130-871-11	FILM	0.01MF 5% 50V	D3	8-719-109-97	DIODE RD6.8ES-B2	
C23	1-126-301-11	ELECT	1MF 20% 50V	D4	8-719-109-97	DIODE RD6.8ES-B2	
C24	1-126-301-11	ELECT	1MF 20% 50V	D5	8-719-110-31	DIODE RD12ES-B2	
C25	1-126-301-11	ELECT	1MF 20% 50V	D6	8-719-110-31	DIODE RD12ES-B2	
C26	1-161-051-00	CERAMIC	0.01MF 10% 50V	D7	8-719-911-19	DIODE 1SS119	
C27	1-126-157-11	ELECT	10MF 20% 16V	D8	8-719-911-19	DIODE 1SS119	
C28	1-126-157-11	ELECT	10MF 20% 16V	D9	8-719-110-03	DIODE RD7.5ES-B2	
C29	1-126-301-11	ELECT	1MF 20% 50V	D10	8-719-110-03	DIODE RD7.5ES-B2	
C30	1-161-051-00	CERAMIC	0.01MF 10% 50V	D11	8-719-110-41	DIODE RD15ES-B2	
C31	1-102-973-00	CERAMIC	100PF 5% 50V	D12	8-719-109-89	DIODE RD5.6ES-B2	
C32	1-101-361-00	CERAMIC	150PF 5% 50V	D13	8-719-911-19	DIODE 1SS119	
C33	1-130-871-11	FILM	0.01MF 5% 50V	D14	8-719-911-19	DIODE 1SS119	
C34	1-126-301-11	ELECT	1MF 20% 50V	D15	8-719-911-19	DIODE 1SS119	
C35	1-161-051-00	CERAMIC	0.01MF 10% 50V	D18	8-719-911-19	DIODE 1SS119	
C36	1-102-824-00	CERAMIC	470PF 5% 50V	D19	8-719-911-19	DIODE 1SS119	
C38	1-102-824-00	CERAMIC	470PF 5% 50V				
C39	1-161-051-00	CERAMIC	0.01MF 10% 50V				<u>CONNECTOR</u>
C40	1-130-871-11	FILM	0.01MF 5% 50V	DA1	* 1-566-060-11	PIN, CONNECTOR 8P	
C41	1-126-301-11	ELECT	1MF 20% 50V	DA2	* 1-566-056-11	PIN, CONNECTOR 4P	
C42	1-130-871-11	FILM	0.01MF 5% 50V	DA3	* 1-566-062-11	PIN, CONNECTOR 10P	
C43	1-126-301-11	ELECT	1MF 20% 50V	DA4	* 1-566-058-11	PIN, CONNECTOR 6P	
C44	1-124-465-00	ELECT	0.47MF 20% 50V	DA5	* 1-566-055-11	PIN, CONNECTOR 3P	
C45	1-126-157-11	ELECT	10MF 20% 16V	DA6	* 1-566-058-11	PIN, CONNECTOR 6P	
C46	1-126-157-11	ELECT	10MF 20% 16V	DA7	* 1-566-056-11	PIN, CONNECTOR 4P	
C47	1-161-051-00	CERAMIC	0.01MF 10% 50V				<u>IC</u>
C48	1-161-051-00	CERAMIC	0.01MF 10% 50V	IC1	8-759-984-27	IC MB84027B	
C49	1-161-051-00	CERAMIC	0.01MF 10% 50V	IC2	8-759-140-11	IC MC14011BCP	
C50	1-161-051-00	CERAMIC	0.01MF 10% 50V	IC3	8-759-000-58	IC MC14093BCP	
C51	1-161-051-00	CERAMIC	0.01MF 10% 50V	IC4	8-751-580-00	IC CX-158	
C52	1-161-051-00	CERAMIC	0.01MF 10% 50V	IC5	8-759-990-82	IC TL082CP	
C53	1-161-051-00	CERAMIC	0.01MF 10% 50V	IC6	8-759-990-82	IC TL082CP	
C54	1-126-157-11	ELECT	10MF 20% 16V	IC7	8-759-014-96	IC MC1496P	
C55	1-126-157-11	ELECT	10MF 20% 16V	IC8	8-759-981-64	IC LM2903DQ	
C56	1-161-051-00	CERAMIC	0.01MF 10% 50V	IC9	8-759-990-82	IC TL082CP	
C57	1-136-474-11	FILM	0.1MF 5% 100V	IC10	8-759-981-64	IC LM2903DQ	
C58	1-130-871-11	FILM	0.01MF 5% 50V	IC11	8-759-990-82	IC TL082CP	
C59	1-161-051-00	CERAMIC	0.01MF 10% 50V	IC12	8-759-014-96	IC MC1496P	
C60	1-130-871-11	FILM	0.01MF 5% 50V	IC13	8-759-000-49	IC MC14066BCP	
C61	1-161-051-00	CERAMIC	0.01MF 10% 50V	IC14	8-759-000-49	IC MC14066BCP	
C62	1-130-871-11	FILM	0.01MF 5% 50V	IC15	8-759-000-49	IC MC14066BCP	
C63	1-161-051-00	CERAMIC	0.01MF 10% 50V	IC16	8-759-000-49	IC MC14066BCP	
C64	1-130-871-11	FILM	0.01MF 5% 50V	IC17	8-759-945-58	IC RC4558DQ	
C65	1-161-051-00	CERAMIC	0.01MF 10% 50V	IC18	8-759-909-70	IC CX23025	
C66	1-161-051-00	CERAMIC	0.01MF 10% 50V	IC19	8-759-945-58	IC RC4558DQ	
C67	1-126-163-11	ELECT	4.7MF 20% 25V	IC20	8-759-945-58	IC RC4558DQ	
C68	1-101-361-00	CERAMIC	150PF 5% 50V	IC21	8-759-945-58	IC RC4558DQ	
C69	1-126-157-11	ELECT	10MF 20% 16V	IC22	8-759-945-58	IC RC4558DQ	
C70	1-126-157-11	ELECT	10MF 20% 16V	IC23	8-759-945-58	IC RC4558DQ	
C71	1-126-157-11	ELECT	10MF 20% 16V	IC24	8-759-929-62	IC LM7812CT	
C72	1-126-157-11	ELECT	10MF 20% 16V	IC25	8-759-929-65	IC LM7812CT	
C73	1-161-051-00	CERAMIC	0.01MF 10% 50V	IC26	8-759-990-82	IC TL082CP	
C74	1-126-157-11	ELECT	10MF 20% 16V				<u>COIL</u>
C75	1-126-157-11	ELECT	10MF 20% 16V	L1	1-407-504-00	INDUCTOR	10MMH
C76	1-136-165-00	FILM	0.1MF 5% 50V				
C77	1-136-165-00	FILM	0.1MF 5% 50V				
C78	1-161-051-00	CERAMIC	0.01MF 10% 50V				
C80	1-101-004-00	CERAMIC	0.01MF 5% 50V				
C90	1-136-161-00	FILM	0.047MF 5% 50V				

DA

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
<u>TRANSISTOR</u>							
Q1	8-729-900-89	TRANSISTOR DTC144ES		R40	1-249-417-11	CARBON	1K 5% 1/4W
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE		R41	1-247-800-11	CARBON	51 5% 1/4W
Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE		R42	1-249-430-11	CARBON	12K 5% 1/4W
Q4	8-729-119-78	TRANSISTOR 2SC2785-HFE		R43	1-249-419-11	CARBON	1.5K 5% 1/4W
Q5	8-729-119-78	TRANSISTOR 2SC2785-HFE		R44	1-249-424-11	CARBON	3.9K 5% 1/4W
Q6	8-729-119-78	TRANSISTOR 2SC2785-HFE		R45	1-249-429-11	CARBON	10K 5% 1/4W
Q7	8-729-119-78	TRANSISTOR 2SC2785-HFE		R46	1-249-429-11	CARBON	10K 5% 1/4W
Q8	8-729-119-78	TRANSISTOR 2SC2785-HFE		R47	1-249-431-11	CARBON	15K 5% 1/4W
Q9	8-729-800-10	TRANSISTOR 2SC3068		R48	1-249-429-11	CARBON	10K 5% 1/4W
Q10	8-729-119-78	TRANSISTOR 2SC2785-HFE		R49	1-249-429-11	CARBON	10K 5% 1/4W
Q12	8-729-900-89	TRANSISTOR DTC144ES		R50	1-249-429-11	CARBON	10K 5% 1/4W
Q13	8-729-900-89	TRANSISTOR DTC144ES		R51	1-249-429-11	CARBON	10K 5% 1/4W
Q14	8-729-900-89	TRANSISTOR DTC144ES		R52	1-249-417-11	CARBON	1K 5% 1/4W
Q15	8-729-900-89	TRANSISTOR DTC144ES		R53	1-247-903-00	CARBON	1M 5% 1/4W
Q16	8-729-900-89	TRANSISTOR DTC144ES		R54	1-249-421-11	CARBON	2.2K 5% 1/4W
Q17	8-729-900-89	TRANSISTOR DTC144ES		R55	1-249-417-11	CARBON	1K 5% 1/4W
Q18	8-729-119-78	TRANSISTOR 2SC2785-HFE		R56	1-249-435-11	CARBON	33K 5% 1/4W
Q19	8-729-119-78	TRANSISTOR 2SC2785-HFE		R57	1-249-429-11	CARBON	10K 5% 1/4W
Q20	8-729-119-78	TRANSISTOR 2SC2785-HFE		R58	1-249-423-11	CARBON	3.3K 5% 1/4W
Q21	8-729-119-78	TRANSISTOR 2SC2785-HFE		R59	1-249-429-11	CARBON	10K 5% 1/4W
Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE		R60	1-215-445-00	METAL	10K 1% 1/6W
Q23	8-729-119-78	TRANSISTOR 2SC2785-HFE		R61	1-249-429-11	CARBON	10K 5% 1/4W
Q24	8-729-119-78	TRANSISTOR 2SC2785-HFE		R62	1-249-427-11	CARBON	6.8K 5% 1/4W
<u>RESISTOR</u>							
R1	1-215-461-00	METAL	47K 1% 1/6W	R63	1-249-393-11	CARBON	10 5% 1/4W
R2	1-249-417-11	CARBON	1K 5% 1/4W	R64	1-249-429-11	CARBON	10K 5% 1/4W
R3	1-249-430-11	CARBON	12K 5% 1/4W	R65	1-249-433-11	CARBON	22K 5% 1/4W
R4	1-249-417-11	CARBON	1K 5% 1/4W	R66	1-249-433-11	CARBON	22K 5% 1/4W
R5	1-249-422-11	CARBON	2.7K 5% 1/4W	R67	1-249-429-11	CARBON	10K 5% 1/4W
R6	1-247-840-00	CARBON	2.4K 5% 1/4W	R68	1-247-903-00	CARBON	1M 5% 1/4W
R7	1-215-462-00	METAL	51K 1% 1/6W	R69	1-249-421-11	CARBON	2.2K 5% 1/4W
R8	1-249-417-11	CARBON	1K 5% 1/4W	R70	1-249-435-11	CARBON	33K 5% 1/4W
R9	1-249-417-11	CARBON	1K 5% 1/4W	R71	1-249-429-11	CARBON	10K 5% 1/4W
R10	1-249-423-11	CARBON	3.3K 5% 1/4W	R72	1-249-423-11	CARBON	3.3K 5% 1/4W
R11	1-249-419-11	CARBON	1.5K 5% 1/4W	R74	1-249-429-11	CARBON	10K 5% 1/4W
R12	1-249-429-11	CARBON	10K 5% 1/4W	R76	1-249-433-11	CARBON	22K 5% 1/4W
R13	1-249-424-11	CARBON	3.9K 5% 1/4W	R77	1-249-439-11	CARBON	68K 5% 1/4W
R14	1-249-419-11	CARBON	1.5K 5% 1/4W	R79	1-249-421-11	CARBON	2.2K 5% 1/4W
R15	1-249-410-11	CARBON	270 5% 1/4W	R80	1-249-435-11	CARBON	33K 5% 1/4W
R16	1-249-417-11	CARBON	1K 5% 1/4W	R81	1-249-429-11	CARBON	10K 5% 1/4W
R17	1-215-427-00	METAL	1.8K 1% 1/6W	R82	1-249-423-11	CARBON	3.3K 5% 1/4W
R18	1-215-435-00	METAL	3.9K 1% 1/6W	R83	1-249-429-11	CARBON	10K 5% 1/4W
R19	1-215-443-00	METAL	8.2K 1% 1/6W	R84	1-215-445-00	METAL	10K 1% 1/6W
R20	1-249-400-11	CARBON	5 5% 1/4W F	R85	1-249-427-11	CARBON	6.8K 5% 1/4W
R21	1-249-429-11	CARBON	10K 5% 1/4W	R86	1-249-429-11	CARBON	10K 5% 1/4W
R22	1-215-445-00	METAL	10K 1% 1/6W	R87	1-249-393-11	CARBON	10 5% 1/4W
R23	1-249-429-11	CARBON	10K 5% 1/4W	R88	1-249-429-11	CARBON	10K 5% 1/4W
R24	1-249-427-11	CARBON	6.8K 5% 1/4W	R89	1-249-429-11	CARBON	10K 5% 1/4W
R25	1-249-393-11	CARBON	10 5% 1/4W	R90	1-249-417-11	CARBON	1K 5% 1/4W
R26	1-215-439-00	METAL	5.6K 1% 1/6W	R91	1-249-429-11	CARBON	10K 5% 1/4W
R27	1-249-429-11	CARBON	10K 5% 1/4W	R92	1-249-435-11	CARBON	33K 5% 1/4W
R28	1-215-421-00	METAL	1K 1% 1/6W	R93	1-249-393-11	CARBON	10 5% 1/4W
R29	1-215-458-00	METAL	36K 1% 1/6W	R94	1-247-848-11	CARBON	5.1K 5% 1/4W
R30	1-249-429-11	CARBON	10K 5% 1/4W	R95	1-249-417-11	CARBON	1K 5% 1/4W
R31	1-249-427-11	CARBON	6.8K 5% 1/4W	R96	1-249-429-11	CARBON	10K 5% 1/4W
R32	1-249-393-11	CARBON	10 5% 1/4W	R97	1-249-433-11	CARBON	22K 5% 1/4W
R33	1-247-848-11	CARBON	5.1K 5% 1/4W	R98	1-249-409-11	CARBON	220 5% 1/4W
R34	1-249-424-11	CARBON	3.9K 5% 1/4W	R99	1-249-405-11	CARBON	100 5% 1/4W
R35	1-247-800-11	CARBON	51 5% 1/4W	R100	1-249-417-11	CARBON	1K 5% 1/4W
R36	1-249-417-11	CARBON	1K 5% 1/4W	R101	1-249-405-11	CARBON	100 5% 1/4W
R37	1-249-417-11	CARBON	1K 5% 1/4W	R102	1-249-430-11	CARBON	12K 5% 1/4W
R38	1-249-417-11	CARBON	1K 5% 1/4W	R103	1-249-424-11	CARBON	3.9K 5% 1/4W
R39	1-249-417-11	CARBON	1K 5% 1/4W	R104	1-247-800-11	CARBON	51 5% 1/4W
				R105	1-249-417-11	CARBON	1K 5% 1/4W
				R106	1-249-417-11	CARBON	1K 5% 1/4W
				R107	1-249-424-11	CARBON	3.9K 5% 1/4W

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark		
R109	1-249-437-11	CARBON	47K 5% 1/4W	R174	1-215-457-00	METAL	33K 1% 1/6W		
R110	1-249-430-11	CARBON	12K 5% 1/4W	R175	1-215-457-00	METAL	33K 1% 1/6W		
R111	1-249-437-11	CARBON	47K 5% 1/4W	R176	1-215-481-00	METAL	330K 1% 1/6W		
R112	1-249-426-11	CARBON	5.6K 5% 1/4W	R177	1-249-429-11	CARBON	10K 5% 1/4W		
R113	1-249-430-11	CARBON	12K 5% 1/4W	R178	1-247-903-00	CARBON	1M 5% 1/4W		
R114	1-249-437-11	CARBON	47K 5% 1/4W	R179	1-249-429-11	CARBON	10K 5% 1/4W		
R115	1-247-830-11	CARBON	910 5% 1/4W	R180	1-249-433-11	CARBON	22K 5% 1/4W		
R116	1-247-830-11	CARBON	910 5% 1/4W	R181	1-249-405-11	CARBON	100 5% 1/4W		
R117	1-215-445-00	METAL	10K 1% 1/6W	R182	1-215-451-00	METAL	18K 1% 1/6W		
R118	1-215-449-00	METAL	15K 1% 1/6W	R183	1-249-429-11	CARBON	10K 5% 1/4W		
R119	1-215-454-00	METAL	24K 1% 1/6W	R184	1-215-477-00	METAL	220K 1% 1/6W		
R120	1-215-437-00	METAL	4.7K 1% 1/6W	R185	1-215-445-00	METAL	10K 1% 1/6W		
R121	1-215-445-00	METAL	10K 1% 1/6W	R186	1-215-445-00	METAL	10K 1% 1/6W		
R122	1-215-421-00	METAL	1K 1% 1/6W	R187	1-215-437-00	METAL	4.7K 1% 1/6W		
R123	1-215-445-00	METAL	10K 1% 1/6W	R188	1-215-431-00	METAL	2.7K 1% 1/6W		
R124	1-215-433-00	METAL	3.3K 1% 1/6W	R189	1-215-405-00	METAL	220 1% 1/6W		
R125	1-215-443-00	METAL	8.2K 1% 1/6W	R190	1-215-433-00	METAL	3.3K 1% 1/6W		
R126	1-215-437-00	METAL	4.7K 1% 1/6W	R191	1-215-405-00	METAL	220 1% 1/6W		
R127	1-249-417-11	CARBON	1K 5% 1/4W	R192	1-215-433-00	METAL	3.3K 1% 1/6W		
R128	1-249-417-11	CARBON	1K 5% 1/4W	R193	1-249-433-11	CARBON	22K 5% 1/4W		
R129	1-249-405-11	CARBON	100 5% 1/4W	R194	1-249-417-11	CARBON	1K 5% 1/4W		
R130	1-249-429-11	CARBON	10K 5% 1/4W	R195	1-249-417-11	CARBON	1K 5% 1/4W		
R131	1-215-445-00	METAL	10K 1% 1/6W	R196	1-249-429-11	CARBON	10K 5% 1/4W		
R132	1-215-445-00	METAL	10K 1% 1/6W	R197	1-249-429-11	CARBON	10K 5% 1/4W		
R133	1-215-461-00	METAL	47K 1% 1/6W	R198	1-215-475-00	METAL	180K 1% 1/6W		
R134	1-215-447-00	METAL	12K 1% 1/6W	R200	1-215-445-00	METAL	10K 1% 1/4W		
R135	1-249-427-11	CARBON	6.8K 5% 1/4W	R201	1-249-429-11	CARBON	10K 5% 1/4W		
R136	1-249-429-11	CARBON	10K 5% 1/4W	R202	1-249-429-11	CARBON	10K 5% 1/4W		
R137	1-249-405-11	CARBON	100 5% 1/4W	R203	1-249-429-11	CARBON	10K 5% 1/4W		
R138	1-249-417-11	CARBON	1K 5% 1/4W	R204	1-249-429-11	CARBON	10K 5% 1/4W		
R139	1-249-417-11	CARBON	1K 5% 1/4W	R205	1-249-437-11	CARBON	47K 5% 1/4W		
R140	1-215-421-00	METAL	1K 1% 1/6W	R206	1-249-417-11	CARBON	1K 5% 1/4W		
R141	1-249-429-11	CARBON	10K 5% 1/4W	R207	1-249-433-11	CARBON	22K 5% 1/4W		
R142	1-215-457-00	METAL	33K 1% 1/6W	R208	1-249-437-11	CARBON	47K 5% 1/4W		
R143	1-215-457-00	METAL	33K 1% 1/4W	R209	1-249-429-11	CARBON	10K 5% 1/4W		
R144	1-249-429-11	CARBON	10K 5% 1/4W	R210	1-249-429-11	CARBON	10K 5% 1/4W		
R145	1-215-481-00	METAL	330K 1% 1/6W	R211	1-249-429-11	CARBON	10K 5% 1/4W		
R146	1-249-429-11	CARBON	10K 5% 1/4W	R220	1-249-439-11	CARBON	68K 5% 1/4W		
R147	1-249-433-11	CARBON	22K 5% 1/4W	R221	1-249-428-11	CARBON	8.2K 5% 1/4W		
R148	1-249-405-11	CARBON	100 5% 1/4W	R223	1-249-433-11	CARBON	22K 5% 1/4W		
R149	1-215-421-00	METAL	1K 1% 1/6W	R224	1-249-433-11	CARBON	22K 5% 1/4W		
R150	1-215-457-00	METAL	33K 1% 1/6W	R290	1-215-443-00	METAL	8.2K 1% 1/6W		
R151	1-215-457-00	METAL	33K 1% 1/6W	VARIABLE RESISTOR					
R152	1-215-481-00	METAL	330K 1% 1/6W	RV1	1-237-521-21	RES, ADJ, CERMET	100K		
R153	1-215-431-00	METAL	2.7K 1% 1/6W	RV2	1-237-522-21	RES, ADJ, CERMET	200K		
R154	1-215-413-00	METAL	470 1% 1/6W	RV3	1-237-521-21	RES, ADJ, CERMET	100K		
R155	1-249-429-11	CARBON	10K 5% 1/4W	RV4	1-237-519-21	RES, ADJ, CERMET	20K		
R156	1-249-429-11	CARBON	10K 5% 1/4W	RV5	1-237-519-21	RES, ADJ, CERMET	20K		
R157	1-249-433-11	CARBON	22K 5% 1/4W	RV6	1-237-518-21	RES, ADJ, CERMET	10K		
R158	1-249-405-11	CARBON	100 5% 1/4W	RV7	1-237-518-21	RES, ADJ, CERMET	10K		
R159	1-249-429-11	CARBON	10K 5% 1/4W	RV10	1-237-519-21	RES, ADJ, CERMET	20K		
R160	1-247-897-11	CARBON	560K 5% 1/4W	RV11	1-237-519-21	RES, ADJ, CERMET	20K		
R161	1-215-455-00	METAL	27K 1% 1/4W	RV12	1-237-519-21	RES, ADJ, CERMET	20K		
R162	1-215-445-00	METAL	10K 1% 1/6W	RV13	1-237-519-21	RES, ADJ, CERMET	20K		
R163	1-215-445-00	METAL	10K 1% 1/6W	RV14	1-237-519-21	RES, ADJ, CERMET	20K		
R164	1-215-461-00	METAL	47K 1% 1/6W	RV15	1-237-519-21	RES, ADJ, CERMET	20K		
R165	1-215-461-00	METAL	47K 1% 1/6W	RV16	1-237-519-21	RES, ADJ, CERMET	20K		
R166	1-215-485-00	METAL	470K 1% 1/6W	RV17	1-237-517-21	RES, ADJ, CERMET	5K		
R167	1-249-429-11	CARBON	10K 5% 1/4W	RV18	1-237-517-21	RES, ADJ, CERMET	5K		
R168	1-249-429-11	CARBON	10K 5% 1/4W	RV19	1-237-519-21	RES, ADJ, CERMET	20K		
R169	1-249-433-11	CARBON	22K 5% 1/4W	RV20	1-237-519-21	RES, ADJ, CERMET	20K		
R170	1-249-405-11	CARBON	100 5% 1/4W	RV21	1-237-519-21	RES, ADJ, CERMET	20K		
R171	1-249-429-11	CARBON	10K 5% 1/4W	RV22	1-237-516-21	RES, ADJ, CERMET	2K		
R172	1-215-445-00	METAL	10K 1% 1/6W	RV23	1-237-516-21	RES, ADJ, CERMET	2K		
R173	1-215-445-00	METAL	10K 1% 1/6W						

DA **DB**

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
RV24	1-237-516-21	RES, ADJ, CERMET 2K		C51	1-136-161-00	FILM	0.047MF 5% 50V
RV25	1-237-519-21	RES, ADJ, CERMET 20K		C52	1-102-074-00	CERAMIC	0.001MF 10% 50V
RV26	1-237-519-21	RES, ADJ, CERMET 20K		C53	1-101-880-00	CERAMIC	47PF 5% 50V
RV27	1-237-519-21	RES, ADJ, CERMET 20K		C54	1-161-051-00	CERAMIC	0.01MF 10% 50V
RV28	1-237-519-21	RES, ADJ, CERMET 20K		C55	1-124-589-11	ELECT	47MF 20% 16V
<u>SWITCH</u>				C56	1-124-589-11	ELECT	47MF 20% 16V
S1	1-571-908-11	SWITCH, SLIDE		C57	1-102-074-00	CERAMIC	0.001MF 10% 50V

*A-1345-732-A DB BOARD, COMPLETE				C58	1-136-161-00	FILM	0.047MF 5% 50V
*****				C59	1-102-973-00	CERAMIC	100PF 5% 50V
*****				C60	1-136-169-00	FILM	0.22MF 5% 50V
3-618-225-00 NUT, PLATE				C61	1-136-161-00	FILM	0.047MF 5% 50V
7-682-548-04 SCREW P 3X8				C62	1-102-074-00	CERAMIC	0.001MF 10% 50V
*****				C63	1-136-161-00	FILM	0.047MF 5% 50V
<u>CAPACITOR</u>				C64	1-102-074-00	CERAMIC	0.001MF 10% 50V
C3	1-102-963-00	CERAMIC	33PF 5% 50V	C65	1-101-880-00	CERAMIC	47PF 5% 50V
C4	1-136-165-00	FILM	0.1MF 5% 50V	C66	1-161-051-00	CERAMIC	0.01MF 10% 50V
C5	1-136-161-00	FILM	0.047MF 5% 50V	C67	1-124-589-11	ELECT	47MF 20% 16V
C6	1-161-051-00	CERAMIC	0.01MF 10% 50V	C68	1-124-589-11	ELECT	47MF 20% 16V
C7	1-124-589-11	ELECT	47MF 20% 16V	C69	1-161-051-00	CERAMIC	0.01MF 10% 50V
C8	1-136-153-00	FILM	0.01MF 5% 50V	C70	1-102-074-00	CERAMIC	0.001MF 10% 50V
C9	1-102-074-00	CERAMIC	0.001MF 10% 50V	C71	1-124-589-11	ELECT	47MF 20% 16V
C10	1-136-161-00	FILM	0.047MF 5% 50V	C72	1-126-096-11	ELECT	10MF 20% 25V
C11	1-102-973-00	CERAMIC	100PF 5% 50V	C73	1-126-096-11	ELECT	10MF 20% 25V
C12	1-136-165-00	FILM	0.1MF 5% 50V	C74	1-126-096-11	ELECT	10MF 20% 25V
C13	1-136-161-00	FILM	0.047MF 5% 50V	C75	1-126-096-11	ELECT	10MF 20% 25V
C14	1-102-824-00	CERAMIC	470PF 5% 50V	C76	1-126-096-11	ELECT	10MF 20% 25V
C15	1-136-165-00	FILM	0.1MF 5% 50V	C77	1-126-096-11	ELECT	10MF 20% 25V
C16	1-102-074-00	CERAMIC	0.001MF 10% 50V	C78	1-161-051-00	CERAMIC	0.01MF 10% 50V
C17	1-136-153-00	FILM	0.01MF 5% 50V	C79	1-102-121-00	CERAMIC	0.0022MF 10% 50V
C18	1-161-051-00	CERAMIC	0.01MF 10% 50V	C80	1-136-155-00	FILM	0.15MF 5% 50V
C19	1-124-589-11	ELECT	47MF 20% 16V	C81	1-101-361-00	CERAMIC	150PF 5% 50V
C20	1-124-589-11	ELECT	47MF 20% 16V	C82	1-161-051-00	CERAMIC	0.01MF 10% 50V
C21	1-161-051-00	CERAMIC	0.01MF 10% 50V	C83	1-161-051-00	CERAMIC	0.01MF 10% 50V
C22	1-124-589-11	ELECT	47MF 20% 16V	<u>DIODE</u>			
C23	1-163-157-00	FILM	0.022MF 5% 50V	D2	8-719-110-41	DIODE RD15ES-B2	
C24	1-136-165-00	FILM	0.1MF 5% 50V	D3	8-719-911-19	DIODE 1SS119	
C25	1-136-153-00	FILM	0.01MF 5% 50V	D4	8-719-911-19	DIODE 1SS119	
C26	1-136-161-00	FILM	0.047MF 5% 50V	D5	8-719-911-19	DIODE 1SS119	
C27	1-163-157-00	FILM	0.022MF 5% 50V	D6	8-719-110-03	DIODE RD7.5ES-B2	
C28	1-136-165-00	FILM	0.1MF 5% 50V	D7	8-719-110-03	DIODE RD7.5ES-B2	
C29	1-136-153-00	FILM	0.01MF 5% 50V	D8	8-719-109-97	DIODE RD6.8ESB2	
C30	1-136-161-00	FILM	0.047MF 5% 50V	<u>CONNECTOR</u>			
C31	1-124-589-11	ELECT	47MF 20% 16V	DB1	*1-566-062-11	PIN, CONNECTOR 10P	
C32	1-161-051-00	CERAMIC	0.01MF 10% 50V	DB2	*1-566-054-11	PIN, CONNECTOR 2P	
C33	1-102-074-00	CERAMIC	0.001MF 10% 50V	DB3	*1-566-055-11	PIN, CONNECTOR 3P	
C34	1-136-161-00	FILM	0.047MF 5% 50V	DB4	*1-566-055-11	PIN, CONNECTOR 3P	
C35	1-102-973-00	CERAMIC	100PF 5% 50V	DB5	*1-566-055-11	PIN, CONNECTOR 3P	
C36	1-136-165-00	FILM	0.1MF 5% 50V	DB6	*1-566-062-11	PIN, CONNECTOR 10P	
C37	1-136-161-00	FILM	0.047MF 5% 50V	DB7	*1-566-062-11	PIN, CONNECTOR 10P	
C38	1-102-824-00	CERAMIC	470PF 5% 50V	<u>IC</u>			
C39	1-136-165-00	FILM	0.1MF 5% 50V	IC1	8-759-945-58	IC RC4558P	
C40	1-102-074-00	CERAMIC	0.001MF 10% 50V	IC2	8-759-945-58	IC RC4558P	
C41	1-136-153-00	FILM	0.01MF 5% 50V	IC3	8-759-945-58	IC RC4558P	
C42	1-161-051-00	CERAMIC	0.01MF 10% 50V	IC4	8-759-945-58	IC RC4558P	
C43	1-124-589-11	ELECT	47MF 20% 16V	IC5	8-759-945-58	IC RC4558P	
C44	1-124-589-11	ELECT	47MF 20% 16V	IC6	8-759-945-58	IC RC4558P	
C45	1-102-074-00	CERAMIC	0.001MF 10% 50V	IC7	8-759-945-58	IC RC4558P	
C46	1-136-161-00	FILM	0.047MF 5% 50V	IC8	8-759-945-58	IC RC4558P	
C47	1-102-973-00	CERAMIC	100PF 5% 50V	IC11	8-759-140-53	IC MC14053BCP	
C48	1-136-165-00	FILM	0.1MF 5% 50V	IC12	8-759-945-58	IC RC4558P	
C49	1-136-161-00	FILM	0.047MF 5% 50V	IC13	8-759-929-62	IC LM7812CT	
C50	1-108-794-11	MYLAR	0.0015MF 5% 50V				

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
IC14	8-759-929-65	IC LM7912CT		R14	1-249-433-11	CARBON	22K 5% 1/4W
IC15	8-759-345-38	IC HD14538BP		R15	1-249-433-11	CARBON	22K 5% 1/4W
IC16	8-759-981-64	IC LM2903DQ		R16	1-249-441-11	CARBON	100K 5% 1/4W
<u>COIL</u>							
L1	1-408-236-00	INDUCTOR	2.7MMH	R17	1-249-433-11	CARBON	22K 5% 1/4W
L2	1-408-236-00	INDUCTOR	2.7MMH	R18	1-215-477-00	METAL	220K 1% 1/6W
L3	1-408-238-00	INDUCTOR	3.9MMH	R19	1-249-429-11	CARBON	10K 5% 1/4W
L4	1-408-237-00	INDUCTOR	3.3MMH	R20	1-249-433-11	CARBON	22K 5% 1/4W
<u>TRANSISTOR</u>							
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE		R21	1-249-433-11	CARBON	22K 5% 1/4W
Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE		R22	1-249-441-11	CARBON	100K 5% 1/4W
Q4	8-729-900-63	TRANSISTOR DTC124ES		R23	1-249-429-11	CARBON	10K 5% 1/4W
Q5	8-729-119-78	TRANSISTOR 2SC2785-HFE		R24	1-215-453-00	METAL	22K 1% 1/6W
Q6	8-729-119-78	TRANSISTOR 2SC2785-HFE		R25	1-249-405-11	CARBON	100 5% 1/4W
Q7	8-729-201-05	TRANSISTOR 2SC2878-B		R26	1-249-417-11	CARBON	1K 5% 1/4W
Q8	8-729-119-78	TRANSISTOR 2SC2785-HFE		R27	1-249-433-11	CARBON	22K 5% 1/4W
Q9	8-729-106-07	TRANSISTOR 2SK514-M		R28	1-249-425-11	CARBON	4.7K 5% 1/4W
Q10	8-729-900-63	TRANSISTOR DTC124ES		R29	1-249-435-11	CARBON	33K 5% 1/4W
Q11	8-729-201-05	TRANSISTOR 2SC2878-B		R30	1-249-421-11	CARBON	2.2K 5% 1/4W
Q12	8-729-201-05	TRANSISTOR 2SC2878-B		R31	1-249-417-11	CARBON	1K 5% 1/4W
Q13	8-729-106-07	TRANSISTOR 2SK514-M		R32	1-249-433-11	CARBON	22K 5% 1/4W
Q14	8-729-900-63	TRANSISTOR DTC124ES		R33	1-249-425-11	CARBON	4.7K 5% 1/4W
Q15	8-729-119-78	TRANSISTOR 2SC2785-HFE		R34	1-247-903-00	CARBON	1M 5% 1/4W
Q16	8-729-106-07	TRANSISTOR 2SK514-M		R35	1-249-429-11	CARBON	10K 5% 1/4W
Q17	8-729-900-63	TRANSISTOR DTC124ES		R36	1-249-429-11	CARBON	10K 5% 1/4W
Q18	8-729-119-78	TRANSISTOR 2SC2785-HFE		R37	1-249-429-11	CARBON	10K 5% 1/4W
Q19	8-729-201-05	TRANSISTOR 2SC2878-B		R38	1-215-445-00	METAL	10K 1% 1/6W
Q20	8-729-201-05	TRANSISTOR 2SC2878-B		R39	1-215-445-00	METAL	10K 1% 1/6W
Q21	8-729-201-05	TRANSISTOR 2SC2878-B		R40	1-249-429-11	CARBON	10K 5% 1/4W
Q22	8-729-119-78	TRANSISTOR 2SC2785-HFE		R42	1-249-441-11	CARBON	100K 5% 1/4W
Q23	8-729-119-78	TRANSISTOR 2SC2785-HFE		R43	1-249-405-11	CARBON	100 5% 1/4W
Q24	8-729-106-07	TRANSISTOR 2SK514-M		R44	1-249-421-11	CARBON	2.2K 5% 1/4W
Q25	8-729-119-78	TRANSISTOR 2SC2785-HFE		R45	1-215-445-00	METAL	10K 1% 1/6W
Q26	8-729-119-78	TRANSISTOR 2SC2785-HFE		R46	1-215-445-00	METAL	10K 1% 1/6W
Q27	8-729-119-78	TRANSISTOR 2SC2785-HFE		R47	1-249-429-11	CARBON	10K 5% 1/4W
Q28	8-729-106-07	TRANSISTOR 2SK514-M		R48	1-247-895-00	CARBON	470K 5% 1/4W
Q29	8-729-119-78	TRANSISTOR 2SC2785-HFE		R49	1-215-451-00	METAL	18K 1% 1/6W
Q30	8-729-119-78	TRANSISTOR 2SC2785-HFE		R50	1-215-451-00	METAL	18K 1% 1/6W
Q31	8-729-119-78	TRANSISTOR 2SC2785-HFE		R51	1-249-429-11	CARBON	10K 5% 1/4W
Q32	8-729-106-07	TRANSISTOR 2SK514-M		R52	1-215-451-00	METAL	18K 1% 1/6W
Q33	8-729-119-78	TRANSISTOR 2SC2785-HFE		R53	1-247-895-00	CARBON	470K 5% 1/4W
Q34	8-729-173-38	TRANSISTOR 2SA733-K		R54	1-215-451-00	METAL	18K 1% 1/6W
Q35	8-729-173-38	TRANSISTOR 2SA733-K		R55	1-249-429-11	CARBON	10K 5% 1/4W
Q36	8-729-119-78	TRANSISTOR 2SC2785-HFE		R57	1-249-405-11	CARBON	100 5% 1/4W
Q37	8-729-900-63	TRANSISTOR DTC124ES		R58	1-249-405-11	CARBON	100 5% 1/4W
Q38	8-729-173-38	TRANSISTOR 2SA733-K		R59	1-249-421-11	CARBON	2.2K 5% 1/4W
Q40	8-729-119-78	TRANSISTOR 2SC2785-HFE		R60	1-215-445-00	METAL	10K 1% 1/6W
Q41	8-729-119-78	TRANSISTOR 2SC2785-HFE		R61	1-249-429-11	CARBON	10K 5% 1/4W
Q43	8-729-119-78	TRANSISTOR 2SC2785-HFE		R62	1-215-445-00	METAL	10K 1% 1/6W
Q44	8-729-173-38	TRANSISTOR 2SA733-K		R63	1-215-453-00	METAL	22K 1% 1/6W
<u>RESISTOR</u>							
R3	1-249-423-11	CARBON	3.3K 5% 1/4W	R64	1-249-429-11	CARBON	10K 5% 1/4W
R4	1-249-441-11	CARBON	100K 5% 1/4W	R65	1-249-405-11	CARBON	100 5% 1/4W
R5	1-249-429-11	CARBON	10K 5% 1/4W	R66	1-249-417-11	CARBON	1K 5% 1/4W
R6	1-249-420-11	CARBON	1.8K 5% 1/4W	R67	1-249-433-11	CARBON	22K 5% 1/4W
R7	1-249-429-11	CARBON	10K 5% 1/4W	R68	1-249-425-11	CARBON	4.7K 5% 1/4W
R8	1-249-429-11	CARBON	10K 5% 1/4W	R69	1-249-435-11	CARBON	33K 5% 1/4W
R9	1-249-425-11	CARBON	4.7K 5% 1/4W	R70	1-249-421-11	CARBON	22K 5% 1/4W
R10	1-215-467-00	METAL	82K 1% 1/6W	R71	1-249-417-11	CARBON	1K 5% 1/4W
R11	1-215-439-00	METAL	5.6K 1% 1/6W	R72	1-249-433-11	CARBON	22K 5% 1/4W
R12	1-215-477-00	METAL	220K 1% 1/6W	R73	1-249-425-11	CARBON	4.7K 5% 1/4W
R13	1-249-429-11	CARBON	10K 5% 1/4W	R74	1-247-903-00	CARBON	1M 5% 1/4W
				R75	1-249-429-11	CARBON	10K 5% 1/4W
				R76	1-249-429-11	CARBON	10K 5% 1/4W
				R77	1-249-429-11	CARBON	10K 5% 1/4W
				R78	1-215-469-00	METAL	100K 1% 1/6W
				R79	1-249-405-11	CARBON	100 5% 1/4W
				R80	1-249-417-11	CARBON	1K 5% 1/4W

DB **DC**

<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>			<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>			
R81	1-249-433-11	CARBON	22K	5%	1/4W		R192	1-215-453-00	METAL	22K	1%	1/6W
R82	1-249-425-11	CARBON	4.7K	5%	1/4W		R193	1-249-417-11	CARBON	1K	5%	1/4W
R83	1-249-435-11	CARBON	33K	5%	1/4W		R194	1-249-417-11	CARBON	1K	5%	1/4W
R84	1-249-421-11	CARBON	2.2K	5%	1/4W							
R85	1-249-417-11	CARBON	1K	5%	1/4W							
R86	1-249-433-11	CARBON	22K	5%	1/4W							
R87	1-249-425-11	CARBON	4.7K	5%	1/4W							
R88	1-247-895-00	CARBON	470K	5%	1/4W							
R89	1-247-895-00	CARBON	470K	5%	1/4W							
R90	1-249-429-11	CARBON	10K	5%	1/4W							
R91	1-249-429-11	CARBON	10K	5%	1/4W		C1	1-126-157-11	ELECT	10MF	20%	16V
R92	1-215-469-00	METAL	100K	1%	1/6W		C2	1-126-157-11	ELECT	10MF	20%	16V
R93	1-249-405-11	CARBON	100	5%	1/4W		C3	1-161-051-00	CERAMIC	0.01MF	10%	25V
R94	1-249-417-11	CARBON	1K	5%	1/4W		C4	1-161-051-00	CERAMIC	0.01MF	10%	25V
R95	1-249-433-11	CARBON	22K	5%	1/4W							
R96	1-249-425-11	CARBON	4.7K	5%	1/4W							
R97	1-249-435-11	CARBON	33K	5%	1/4W		DC1	*1-566-062-11	PIN, CONNECTOR 10P			
R98	1-249-421-11	CARBON	2.2K	5%	1/4W		DC2	*1-566-062-11	PIN, CONNECTOR 10P			
R99	1-249-412-11	CARBON	390	5%	1/4W							
R100	1-249-433-11	CARBON	22K	5%	1/4W							
R101	1-249-425-11	CARBON	4.7K	5%	1/4W		IC1	8-759-040-53	IC MC14053BCP			
R102	1-247-895-00	CARBON	470K	5%	1/4W		IC2	8-759-040-53	IC MC14053BCP			
R103	1-247-895-00	CARBON	470K	5%	1/4W							
R104	1-249-429-11	CARBON	10K	5%	1/4W							
R105	1-249-429-11	CARBON	10K	5%	1/4W							
R106	1-215-397-00	METAL	100	1%	1/6W	F	Q1	8-729-203-49	TRANSISTOR 2SC3327-B			
R107	1-249-393-11	CARBON	10	5%	1/4W	F	Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE			
R108	1-249-393-11	CARBON	10	5%	1/4W	F	Q3	8-729-119-78	TRANSISTOR 2SC2785-HFE			
R109	1-249-429-11	CARBON	10K	5%	1/4W							
R110	1-215-437-00	METAL	4.7K	1%	1/6W							
R111	1-249-421-11	CARBON	2.2K	5%	1/4W		R1	1-215-445-00	METAL	10K	1%	1/6W
R112	1-249-405-11	CARBON	100	5%	1/4W		R2	1-215-453-00	METAL	22K	1%	1/6W
R113	1-249-429-11	CARBON	10K	5%	1/4W		R3	1-215-453-00	METAL	22K	1%	1/6W
R114	1-215-441-00	METAL	6.8K	1%	1/6W		R4	1-215-453-00	METAL	22K	1%	1/6W
R115	1-215-469-00	METAL	100K	1%	1/6W		R5	1-215-445-00	METAL	10K	1%	1/6W
R116	1-249-421-11	CARBON	2.2K	5%	1/4W		R6	1-215-453-00	METAL	22K	1%	1/6W
R117	1-249-405-11	CARBON	100	5%	1/4W		R7	1-215-453-00	METAL	22K	1%	1/6W
R118	1-249-405-11	CARBON	100	5%	1/4W		R8	1-215-453-00	METAL	22K	1%	1/6W
R120	1-215-421-00	METAL	1K	1%	1/6W		R9	1-215-453-00	METAL	22K	1%	1/6W
R121	1-249-425-11	CARBON	4.7K	5%	1/4W		R10	1-215-453-00	METAL	22K	1%	1/6W
R122	1-215-461-00	METAL	47K	1%	1/6W		R11	1-215-445-00	METAL	10K	1%	1/6W
R123	1-215-437-00	METAL	4.7K	1%	1/6W		R12	1-215-453-00	METAL	22K	1%	1/6W
R124	1-215-437-00	METAL	4.7K	1%	1/6W		R13	1-215-453-00	METAL	22K	1%	1/6W
R125	1-215-469-00	METAL	100K	1%	1/6W		R14	1-215-453-00	METAL	22K	1%	1/6W
R126	1-249-435-11	CARBON	33K	5%	1/4W		R15	1-215-445-00	METAL	10K	1%	1/6W
R128	1-202-669-15	SOLID	10M	5%	1/2W		R16	1-215-461-00	METAL	47K	1%	1/6W
R129	1-215-479-00	METAL	270K	1%	1/6W		R17	1-215-461-00	METAL	47K	1%	1/6W
R130	1-247-830-11	CARBON	910	5%	1/4W		R18	1-215-467-00	METAL	82K	1%	1/6W
R132	1-247-830-11	CARBON	910	5%	1/4W		R19	1-215-461-00	METAL	47K	1%	1/6W
R169	1-247-903-00	CARBON	1M	5%	1/4W		R20	1-215-461-00	METAL	47K	1%	1/6W
R170	1-247-903-00	CARBON	1M	5%	1/4W		R21	1-215-445-00	METAL	10K	1%	1/6W
R171	1-249-441-11	CARBON	100K	5%	1/4W		R22	1-215-469-00	METAL	100K	1%	1/6W
R172	1-249-429-11	CARBON	10K	5%	1/4W		R23	1-215-469-00	METAL	100K	1%	1/6W
R173	1-249-429-11	CARBON	10K	5%	1/4W		R24	1-215-469-00	METAL	100K	1%	1/6W
R174	1-249-421-11	CARBON	2.2K	5%	1/4W		R25	1-215-445-00	METAL	10K	1%	1/6W
R175	1-249-421-11	CARBON	2.2K	5%	1/4W		R26	1-215-461-00	METAL	47K	1%	1/6W
R176	1-249-425-11	CARBON	4.7K	5%	1/4W		R27	1-215-461-00	METAL	47K	1%	1/6W
R177	1-249-421-11	CARBON	2.2K	5%	1/4W		R28	1-215-467-00	METAL	82K	1%	1/6W
R185	1-249-417-11	CARBON	1K	5%	1/4W		R29	1-215-461-00	METAL	47K	1%	1/6W
R186	1-249-429-11	CARBON	10K	5%	1/4W		R30	1-215-461-00	METAL	47K	1%	1/6W
R187	1-249-435-11	CARBON	33K	5%	1/4W		R31	1-215-461-00	METAL	47K	1%	1/6W
R188	1-249-429-11	CARBON	10K	5%	1/4W		R32	1-215-449-00	METAL	15K	1%	1/6W
R189	1-249-435-11	CARBON	33K	5%	1/4W		R33	1-249-433-11	CARBON	22K	5%	1/4W
R190	1-249-417-11	CARBON	1K	5%	1/4W		R34	1-249-437-11	CARBON	47K	5%	1/4W
R191	1-249-423-11	CARBON	3.3K	5%	1/4W		R35	1-249-437-11	CARBON	47K	5%	1/4W
							R36	1-249-438-11	CARBON	56K	5%	1/4W

DC **EA**

Ref.No	Part No.	Description	Remark			Ref.No	Part No.	Description	Remark		
R37	1-249-440-11	CARBON	82K	5%	1/4W	C17	1-123-330-00	ELECT	22MF	20%	16V
R38	1-249-417-11	CARBON	1K	5%	1/4W	C18	1-102-973-00	CERAMIC	100PF	5%	50V
R39	1-215-453-00	METAL	22K	1%	1/6W	C19	1-124-910-11	ELECT	47MF	20%	25V
R40	1-215-469-00	METAL	100K	1%	1/6W	C20	1-136-161-00	FILM	0.047MF	5%	50V
R41	1-215-469-00	METAL	100K	1%	1/6W	C21	1-101-810-00	CERAMIC	100PF	5%	500V
R42	1-215-445-00	METAL	10K	1%	1/6W	C22	1-108-700-11	MYLAR	0.047MF	10%	200V
<u>VARIABLE RESISTOR</u>											
RV1	1-237-518-21	RES, ADJ, CERMET	10K			C23	1-123-024-21	ELECT	33MF	160V	
RV2	1-237-518-21	RES, ADJ, CERMET	10K			C24	1-124-046-00	ELECT	10MF	160V	
RV3	1-237-518-21	RES, ADJ, CERMET	10K			C25	1-136-112-00	FILM	1.4MF	5%	200V
RV4	1-237-518-21	RES, ADJ, CERMET	10K			C26	1-136-161-00	FILM	0.047MF	5%	50V
RV5	1-237-518-21	RES, ADJ, CERMET	10K			C27	1-108-700-11	MYLAR	0.047MF	10%	200V
RV6	1-237-518-21	RES, ADJ, CERMET	10K			C28	1-124-666-11	ELECT	4.7MF	20%	200V
RV7	1-237-518-21	RES, ADJ, CERMET	10K			C29	1-101-810-00	CERAMIC	100PF	5%	500V
RV8	1-237-518-21	RES, ADJ, CERMET	10K			C30	1-162-135-11	CERAMIC	560PF	10%	2KV
RV9	1-237-518-21	RES, ADJ, CERMET	10K			C31	1-136-069-00	FILM	0.0044MF	3%	2KV
RV10	1-237-518-21	RES, ADJ, CERMET	10K			C32	1-136-069-00	FILM	0.0044MF	3%	2KV
RV11	1-237-518-21	RES, ADJ, CERMET	10K			C33	1-124-512-11	ELECT	33MF	20%	50V
RV12	1-237-518-21	RES, ADJ, CERMET	10K			C34	1-124-512-11	ELECT	33MF	20%	50V
RV13	1-237-518-21	RES, ADJ, CERMET	10K			C35	1-126-163-11	ELECT	4.7MF	20%	50V
RV14	1-237-518-21	RES, ADJ, CERMET	10K			C36	1-126-163-11	ELECT	4.7MF	20%	50V
RV15	1-237-518-21	RES, ADJ, CERMET	10K			C37	1-161-051-00	CERAMIC	0.01MF	10%	50V
RV16	1-237-518-21	RES, ADJ, CERMET	10K			C39	1-162-318-11	CERAMIC	0.001MF	10%	500V
RV17	1-237-518-21	RES, ADJ, CERMET	10K			C40	1-123-356-00	ELECT	10MF	20%	16V
RV18	1-237-518-21	RES, ADJ, CERMET	10K			C41	1-102-244-00	CERAMIC	220PF	10%	500V
RV19	1-237-518-21	RES, ADJ, CERMET	10K			C42	1-102-973-00	CERAMIC	100PF	5%	50V
RV20	1-237-518-21	RES, ADJ, CERMET	10K			<u>DIODE</u>					
RV21	1-237-518-21	RES, ADJ, CERMET	10K			D1	8-719-110-31	DIODE RD12ES-B2			
RV22	1-237-518-21	RES, ADJ, CERMET	10K			D2	8-719-911-19	DIODE ISS119			
RV23	1-237-518-21	RES, ADJ, CERMET	10K			D3	8-719-911-19	DIODE ISS119			
RV24	1-237-518-21	RES, ADJ, CERMET	10K			D4	8-719-911-19	DIODE ISS119			
RV25	1-237-518-21	RES, ADJ, CERMET	10K			D7	8-719-110-03	DIODE RD7.5ES-B2			
RV26	1-237-518-21	RES, ADJ, CERMET	10K			D8	8-719-300-76	DIODE RH-1			
RV27	1-237-518-21	RES, ADJ, CERMET	10K			D9	8-719-928-08	DIODE ERD28-08S			
RV28	1-237-518-21	RES, ADJ, CERMET	10K			D10	8-719-300-76	DIODE RH-1A			
RV29	1-237-518-21	RES, ADJ, CERMET	10K			D11	8-719-300-76	DIODE RH-1A			
RV30	1-237-518-21	RES, ADJ, CERMET	10K			D12	8-719-300-76	DIODE RH-1A			
RV31	1-237-521-21	RES, ADJ, CERMET	100K			D13	8-719-109-75	DIODE RD4.3ES-B2			
RV32	1-237-518-21	RES, ADJ, CERMET	10K			D14	8-719-109-75	DIODE RD4.3ES-B2			
RV33	1-237-518-21	RES, ADJ, CERMET	10K			D15	8-719-911-19	DIODE ISS119			

*A-1345-730-A EA BOARD, COMPLETE											

4-347-706-00 HEAT SINK (TR)											
4-373-965-01 INSULATOR (SMALL)											
7-682-548-04 SCREW +P 3X8											
7-685-646-79 SCREW BVTP 3X8 TYPE2 IT-3											
<u>CAPACITOR</u>											
C1	1-101-810-00	CERAMIC	100PF	5%	500V	L1	1-459-433-00	COIL (WITH CORE)			
C2	1-124-917-11	ELECT	33MF	20%	25V	L2	1-459-433-00	COIL (WITH CORE)			
C3	1-124-357-11	ELECT	33MF	20%	35V	L3	1-459-433-00	COIL (WITH CORE)			
C4	1-124-046-00	ELECT	10MF		160V	L4	1-459-111-00	COIL, DRAM CORE (CDI)			
C5	1-124-046-00	ELECT	10MF		160V	L5	1-459-111-00	COIL, DRAM CORE (CDI)			
C6	1-101-361-00	CERAMIC	150PF	5%	50V	<u>TRANSISTOR</u>					
C7	1-124-046-00	ELECT	10MF		160V	Q1	8-729-119-78	TRANSISTOR 2SC2785-HFE			
C8	1-136-337-11	FILM	3.3MF	10%	100V	Q2	8-729-697-92	TRANSISTOR 2SA979-G			
C12	1-102-121-00	CERAMIC	0.0022MF	10%	50V	Q3	8-729-140-96	TRANSISTOR 2SD774-34			
C13	1-136-165-00	FILM	0.1MF	5%	50V	Q4	8-729-303-61	TRANSISTOR 2SC3851			
C14	1-130-728-00	FILM	0.0022MF	5%	50V	Q5	8-729-304-07	TRANSISTOR 2SA1488-Y			
C15	1-102-973-00	CERAMIC	100PF	5%	50V	Q10	8-729-119-80	TRANSISTOR 2SC2688-LK			
C16	1-123-356-00	ELECT	10MF	20%	25V	Q11	8-729-175-22	TRANSISTOR 2SC2752			
						Q12	8-729-200-17	TRANSISTOR 2SA1091-O			
						Q13	8-729-119-80	TRANSISTOR 2SC2688-LK			

EA **EB**

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>			<u>Remark</u>	<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>			<u>Remark</u>
Q14	8-729-202-53	TRANSISTOR	2SD1556-LB			T2	1-407-850-00	DLT			
Q15	8-729-313-42	TRANSISTOR	2SD1134-C			T3	1-437-078-00	TRANSFORMER, HORIZONTAL DRIVE			
Q16	8-729-385-82	TRANSISTOR	2SB858-C			T4	1-437-079-00	TRANSFORMER, HORIZONTAL DRIVE			
<u>RESISTOR</u>											
R1	1-249-418-11	CARBON	1.2K	5%	1/4W		T5	1-439-383-11	HOT		
R2	1-249-425-11	CARBON	4.7K	5%	1/4W						
R3	1-249-429-11	CARBON	10K	5%	1/4W						
R4	1-249-429-11	CARBON	10K	5%	1/4W						
R5	1-249-429-11	CARBON	10K	5%	1/4W						
R6	1-249-429-11	CARBON	10K	5%	1/4W						
R7	1-249-421-11	CARBON	2.2K	5%	1/4W						
R8	1-249-438-11	CARBON	56K	5%	1/4W						
R9	1-249-429-11	CARBON	10K	5%	1/4W						
R10	1-249-418-11	CARBON	1.2K	5%	1/4W						
R11	1-249-448-11	CARBON	1.2	5%	1/4W	F					
R12	1-249-448-11	CARBON	1.2	5%	1/4W	F					
R13	1-249-417-11	CARBON	1K	5%	1/4W						
R14	1-215-887-00	METAL OXIDE	150	5%	2W	F					
R15	1-249-429-11	CARBON	10K	5%	1/4W						
R22	1-249-417-11	CARBON	1K	5%	1/4W						
R23	1-215-445-00	METAL	10K	1%	1/6W						
R24	1-215-445-00	METAL	10K	1%	1/6W						
R25	1-215-431-00	METAL	2.7K	1%	1/6W						
R26	1-215-431-00	METAL	2.7K	1%	1/6W						
R27	1-249-435-11	CARBON	33K	5%	1/4W						
R28	1-215-461-00	METAL	47K	1%	1/6W						
R29	1-249-429-11	CARBON	10K	5%	1/4W						
R30	1-249-429-11	CARBON	10K	5%	1/4W						
R31	1-247-868-11	CARBON	36K	5%	1/4W						
R32	1-249-429-11	CARBON	10K	5%	1/4W						
R33	1-249-427-11	CARBON	6.8K	5%	1/4W						
R34	1-215-433-00	METAL	3.3K	1%	1/6W						
R35	1-215-435-00	METAL	3.9K	1%	1/6W						
R36	1-249-429-11	CARBON	10K	5%	1/4W						
R37	1-249-441-11	CARBON	100K	5%	1/4W						
R38	1-249-429-11	CARBON	10K	5%	1/4W						
R39	1-215-469-00	METAL	100K	1%	1/6W						
R40	1-249-429-11	CARBON	10K	5%	1/4W						
R41	1-249-429-11	CARBON	10K	5%	1/4W						
R42	1-215-876-00	METAL OXIDE	15K	5%	1W	F					
R43	1-215-859-00	METAL OXIDE	22	5%	1W	F					
R44	1-216-349-00	METAL OXIDE	1	5%	1W	F					
R45	1-249-417-11	CARBON	1K	5%	1/4W						
R46	1-249-417-11	CARBON	1K	5%	1/4W						
R47	1-216-463-00	METAL OXIDE	12K	5%	2W	F					
R48	1-216-346-00	METAL OXIDE	0.56	5%	1W	F					
R49	1-249-382-11	CARBON	1.2	5%	1/4W	F					
R50	1-247-826-00	CARBON	620	5%	1/4W						
R51	1-247-826-00	CARBON	620	5%	1/4W						
R52	1-215-445-00	METAL	10K	1%	1/6W						
R53	1-215-445-00	METAL	10K	1%	1/6W						
R54	1-215-447-00	METAL	12K	1%	1/6W						
R55	1-249-391-11	CARBON	6.8	5%	1/4W	F					
R56	1-215-445-00	METAL	10K	1%	1/6W						
R57	1-215-445-00	METAL	10K	1%	1/6W						
R58	1-249-405-11	CARBON	100	5%	1/4W						
R59	1-249-419-11	CARBON	1.5K	5%	1/4W						
R60	1-249-419-11	CARBON	1.5K	5%	1/4W						
R61	1-215-882-00	METAL OXIDE	22	5%	2W	F					
R62	1-215-882-00	METAL OXIDE	22	5%	2W	F					
R63	1-216-361-00	METAL OXIDE	0.22	5%	2W	F					
<u>TRANSFORMER</u>											
T1	1-460-067-11	HLT									

* A-1345-731-A EB BOARD, COMPLETE											

<u>CAPACITOR</u>											
C1	1-124-666-11	ELECT					C6	1-130-789-00	FILM	4.7MF	20%
C2	1-124-917-11	ELECT					C7	1-108-696-11	MYLAR	33MF	20%
C3	1-123-380-00	ELECT					C8	1-124-666-11	ELECT	1MF	20%
C4	1-124-357-11	ELECT					C9	1-130-479-00	MYLAR	33MF	20%
C5	1-102-978-00	CERAMIC					C10	1-124-122-11	ELECT	220PF	5%
C11	1-102-973-00	CERAMIC					C12	1-124-122-11	ELECT	100PF	50V
C12	1-136-161-00	FILM					C13	1-136-161-00	FILM	100MF	20%
C13	1-123-356-00	ELECT					C14	1-124-122-11	ELECT	0.047MF	50V
C14	1-136-155-00	FILM					C15	1-136-155-00	ELECT	10MF	20%
C15	1-162-129-00	CERAMIC					C16	1-124-046-00	ELECT	0.47MF	50V
C16	1-124-046-00	ELECT					C17	1-124-046-00	ELECT	10MF	160V
C17	1-124-046-00	ELECT					C18	1-124-122-11	ELECT	100MF	20%
C18	1-124-122-11	ELECT					C19	1-124-122-11	ELECT	100MF	20%
C19	1-162-129-00	CERAMIC					C20	1-162-129-00	ELECT	150PF	10%
C21	1-136-173-00	FILM					C22	1-102-959-00	CERAMIC	22PF	5%
C22	1-102-959-00	CERAMIC					C23	1-101-880-00	CERAMIC	47PF	5%
<u>DIODE</u>											
D1	8-719-911-19	DIODE	ISS119				D6	8-719-911-19	DIODE	ISS119	
D2	8-719-911-19	DIODE	ISS119				D7	8-719-911-19	DIODE	ISS119	
D3	8-719-911-19	DIODE	ISS119				D8	8-719-911-19	DIODE	ISS119	
D4	8-719-911-55	DIODE	U05G				D9	8-719-911-19	DIODE	ISS119	
D5	8-719-911-55	DIODE	U05G				D10	8-719-911-19	DIODE	ISS119	
D6	8-719-911-19	DIODE	ISS119								
D7	8-719-911-19	DIODE	ISS119								
D8	8-719-911-19	DIODE	ISS119								
D9	8-719-911-19	DIODE	ISS119								
D10	8-719-911-19	DIODE	ISS119								
<u>COIL</u>											
L1	1-459-123-00	COIL	DUST CORE(PAC)								
<u>TRANSISTOR</u>											
Q1	8-729-697-92	TRANSISTOR	2SA979-G				Q6	8-729-300-80	TRANSISTOR	2SB860	
Q2	8-729-140-96	TRANSISTOR	2SD774-34				Q7	8-729-386-12	TRANSISTOR	2SB861-C	
Q3	8-729-309-08	TRANSISTOR	2SC1890A-E				Q8	8-729-255-12	TRANSISTOR	2SC2551-0	
Q4	8-729-309-36	TRANSISTOR	2SA893A-EV				Q9	8-729-697-92	TRANSISTOR	2SA979-G	
Q5	8-729-300-70	TRANSISTOR	2SD1137				Q10	8-729-140-96	TRANSISTOR	2SD774-34	
Q6	8-729-300-80	TRANSISTOR	2SB860				Q11	8-729-140-97	TRANSISTOR	2SB734-34	
Q7	8-729-386-12	TRANSISTOR	2SB861-C								
Q8	8-729-255-12	TRANSISTOR	2SC2551-0								
Q9	8-729-697-92	TRANSISTOR	2SA979-G								
Q10	8-729-140-96	TRANSISTOR	2SD774-34								

The components identified by shading and mark A are critical for safety.
Replace only with part number specified.

EB **GA**

Ref.No	Part No.	Description	Remark
Q12	8-729-306-92	TRANSISTOR 2SD669A-C	
Q13	8-729-306-92	TRANSISTOR 2SD669A-C	
Q14	8-729-255-12	TRANSISTOR 2SC2551-0	
Q15	8-729-255-12	TRANSISTOR 2SC2551-0	
Q16	8-729-255-12	TRANSISTOR 2SC2551-0	
Q17	8-729-200-17	TRANSISTOR 2SA1091-0	
Q18	8-729-119-80	TRANSISTOR 2SC2688-LK	
Q19	8-729-119-80	TRANSISTOR 2SC2688-LK	

RESISTOR

R1	1-249-429-11	CARBON	10K	5%	1/4W	
R2	1-249-433-11	CARBON	22K	5%	1/4W	
R3	1-249-425-11	CARBON	4.7K	5%	1/4W	
R4	1-249-430-11	CARBON	12K	5%	1/4W	
R5	1-249-426-11	CARBON	5.6K	5%	1/4W	
R6	1-249-429-11	CARBON	10K	5%	1/4W	
R7	1-216-465-11	METAL OXIDE	27K	5%	2W	F
R8	1-247-802-11	CARBON	62	5%	1/4W	
R9	1-249-414-11	CARBON	560	5%	1/4W	
R10	1-249-448-11	CARBON	1.2	5%	1/4W	F
R11	1-249-448-11	CARBON	1.2	5%	1/4W	F
R12	1-216-351-00	METAL OXIDE	1.5	5%	1W	F
R13	1-216-431-11	METAL OXIDE	560	5%	1W	F
R14	1-215-866-11	METAL OXIDE	330	5%	1W	F
R15	1-249-425-11	CARBON	4.7K	5%	1/4W	
R16	1-249-423-11	CARBON	3.3K	5%	1/4W	F
R17	1-247-700-11	CARBON	100	5%	1/4W	F
R18	1-215-873-00	METAL OXIDE	4.7K	5%	1W	F
R19	1-249-429-11	CARBON	10K	5%	1/4W	
R20	1-249-429-11	CARBON	10K	5%	1/4W	
R21	1-249-425-11	CARBON	4.7K	5%	1/4W	
R22	1-249-423-11	CARBON	3.3K	5%	1/4W	
R23	1-249-425-11	CARBON	4.7K	5%	1/4W	
R24	1-249-417-11	CARBON	1K	5%	1/4W	
R25	1-249-417-11	CARBON	1K	5%	1/4W	

R26	1-249-421-11	CARBON	2.2K	5%	1/4W	
R27	1-249-421-11	CARBON	2.2K	5%	1/4W	
R28	1-249-405-11	CARBON	100	5%	1/4W	
R29	1-249-452-11	CARBON	27	5%	1/4W	F
R30	1-249-452-11	CARBON	27	5%	1/4W	F
R31	1-249-407-11	CARBON	150	5%	1/4W	F
R32	1-216-351-00	METAL OXIDE	1.5	5%	1W	F
R33	1-215-421-00	METAL	1K	1%	1/6W	
R34	1-215-445-00	METAL	10K	1%	1/6W	
R35	1-249-423-11	CARBON	3.3K	5%	1/4W	
R36	1-216-465-11	METAL OXIDE	27K	5%	2W	F
R37	1-249-401-11	CARBON	47	5%	1/4W	
R38	1-249-425-11	CARBON	4.7K	5%	1/4W	
R39	1-215-445-00	METAL	10K	1%	1/6W	
R40	1-215-453-00	METAL	22K	1%	1/6W	
R41	1-215-421-00	METAL	1K	1%	1/6W	
R42	1-247-688-11	CARBON	10	5%	1/4W	F
R43	1-247-688-11	CARBON	10	5%	1/4W	F
R44	1-215-865-11	METAL OXIDE	220	5%	1W	F
R45	1-247-688-11	CARBON	10	5%	1/4W	F

TRANSFORMER

T1	1-421-504-00	TRANSFORMER, FERRITE (VPT)
T2	1-407-849-00	TRANSFORMER, D.F.

Ref.No	Part No.	Description	Remark
	*A-1316-056-A	GA BOARD, COMPLETE (BVM-2010P/PD ONLY)	*****
	*A-1316-048-A	GA BOARD, COMPLETE (BVM-2010PM/PMD ONLY)	*****
	A-1-532-203-11	FUSE, TIME-LAG 2A/250V (BVM-2010P/PD ONLY)	
	1-533-167-21	HOLDER, FUSE	
	1-533-168-21	HOLDER, FUSE	
	1-535-316-11	TERMINAL, GROUND (M4)	
	1-570-173-21	SWITCH, VOLTAGE CHANGE	

A-1-580-375-11	INLET 3P		
2-990-241-01	HOLDER (A), PLUG		
3-337-402-01	BAND, BINDING		
4-347-706-00	HEAT SINK (TR)		
4-371-879-02	COVER, AC SELECT		
4-379-403-01	SPACER (G1), POLISHING		
4-379-408-01	INSULATOR (G3)		
4-379-409-01	NUT, PLATE		
4-379-410-01	SPACER (G2), POLISHING		
4-379-430-01	PANEL, POWER		
4-386-847-01	HEAT SINK (S.R.T)		
4-386-848-01	BAND (S.R.T)		
4-393-031-01	COVER, FUSE HOLDER		
4-601-466-11	COVER, 3P INLET		
7-682-550-04	SCREW P 3X12		
7-682-552-04	SCREW P 3X16		
7-682-554-04	SCREW P 3X25		
7-682-560-04	SCREW P 4X6		
7-682-247-04	SCREW K 3X6		
7-682-547-09	SCREW B 3X6		
7-682-547-04	SCREW BVTT 3X6 (S)		
7-682-948-01	SCREW PSW 3X8		
7-685-646-79	SCREW BVTP 3X8 TYPE2 IT-3		

CAPACITOR

C1	1-124-024-00	ELECT	4.7MF	20%	350V
C2	1-124-024-00	ELECT	4.7MF	20%	350V
C3	1-162-117-00	CERAMIC	100PF	10%	500V
C4	1-162-117-00	CERAMIC	100PF	10%	500V
C5	1-162-117-00	CERAMIC	100PF	10%	500V
C6	1-162-117-00	CERAMIC	100PF	10%	500V
C7	1-126-104-11	ELECT	470MF	20%	25V
C8	1-126-105-11	ELECT	1000MF	20%	25V
C9	1-126-104-11	ELECT	470MF	20%	25V
C10	1-126-105-11	ELECT	1000MF	20%	25V
C11	1-126-104-11	ELECT	470MF	20%	25V
C12	1-124-602-00	ELECT	2200MF	20%	25V
C13	1-126-104-11	ELECT	470MF	20%	25V
C14	1-124-602-00	ELECT	2200MF	20%	25V
C15	1-124-360-00	ELECT	1000MF	20%	16V
C16	1-126-103-11	ELECT	470MF	20%	16V
C17	1-106-375-12	MYLAR	0.022MF	10%	100V
C18	1-108-638-11	MYLAR	0.1MF	10%	100V
C19	1-102-030-00	CERAMIC	330PF	10%	500V
C20	1-162-117-00	CERAMIC	100PF	10%	500V
C21	1-102-038-00	CERAMIC	0.001MF	5%	50V
C22	1-162-117-00	CERAMIC	100PF	10%	500V
C23	1-106-375-12	MYLAR	0.022MF	10%	100V
C24	1-108-638-11	MYLAR	0.1MF	10%	100V
C25	1-123-380-00	ELECT	1MF	20%	50V
C26	1-101-361-00	CERAMIC	150PF	5%	50V
C27	1-101-361-00	CERAMIC	150PF	5%	50V
C28	1-123-356-00	ELECT	10MF	20%	16V
C29	1-124-910-11	ELECT	47MF	20%	25V
C30	1-162-117-00	CERAMIC	100PF	10%	500V

GA

The components identified by shading and mark A are critical for safety.
Replace only with part number specified.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C31	1-102-030-00	CERAMIC	330PF 10% 500V	C95	1-136-173-00	FILM	0.47MF 5% 50V
C32	1-123-380-00	ELECT	1MF 20% 50V	C96	1-102-050-00	CERAMIC	0.01MF 99% 500V
C33	1-101-361-00	CERAMIC	150PF 5% 50V	C97	1-136-173-00	FILM	0.47MF 5% 50V
C34	1-101-361-00	CERAMIC	150PF 5% 50V	C98	1-136-173-00	FILM	0.47MF 5% 50V
C35	1-123-380-00	ELECT	1MF 20% 50V	C99	1-102-050-00	CERAMIC	0.01MF 99% 500V
C36	1-124-910-11	ELECT	47MF 20% 25V	C100	1-162-117-00	CERAMIC	100PF 10% 500V
C37	1-130-734-00	FILM	0.0068MF 5% 50V	C101	1-162-117-00	CERAMIC	100PF 10% 500V
C38	1-136-165-00	FILM	0.1MF 5% 50V	C102	1-136-601-11	FILM	0.01MF 5% 630V
C39	1-136-165-00	FILM	0.1MF 5% 50V	C103	1-136-601-11	FILM	0.01MF 5% 630V
C40	1-123-381-00	ELECT	2.2MF 20% 50V				
							<u>DIODE</u>
C41	1-102-038-00	CERAMIC	0.001MF 500V	D1	8-719-912-51	DIODE ESAC25-04C	
C42	1-136-165-00	FILM	0.1MF 5% 50V	D2	8-719-918-73	DIODE ESAC25-04N	
C43	1-136-165-00	FILM	0.1MF 5% 50V	D3	8-719-901-73	DIODE ESAD25-04D	
C44	1-123-356-00	ELECT	10MF 20% 16V	D4	8-719-901-73	DIODE ESAD25-04D	
C45	1-162-132-00	CERAMIC	270PF 10% 2KV	D5	8-719-907-24	DIODE ESAC31-02D	
C46	1-123-356-00	ELECT	10MF 20% 16V	D6	8-719-907-24	DIODE ESAC31-02D	
C47	1-136-173-00	FILM	0.47MF 5% 50V	D7	8-719-300-33	DIODE RU-3AM	
C48	1-136-173-00	FILM	0.47MF 5% 50V	D8	8-719-300-52	DIODE CTU-38R	
C49	1-123-356-00	ELECT	10MF 20% 16V	D9	8-719-300-53	DIODE CTU-38S	
C50	1-101-006-00	CERAMIC	0.047MF 50V	D10	8-719-912-51	DIODE ESAC25-04C	
C51	1-101-006-00	CERAMIC	0.047MF 50V	D11	8-719-918-73	DIODE ESAC25-04N	
C52	1-101-006-00	CERAMIC	0.047MF 50V	D12	8-719-911-19	DIODE ISS119	
C53	1-101-006-00	CERAMIC	0.047MF 50V	D13	8-719-911-19	DIODE ISS119	
C54	1-101-006-00	CERAMIC	0.047MF 50V	D14	8-719-100-58	DIODE RD10EB3	
C55	1-123-356-00	ELECT	10MF 20% 16V	D15	8-719-911-19	DIODE ISS119	
C56	1-136-201-11	FILM	0.22MF 5% 400V	D16	8-719-911-19	DIODE ISS119	
C57	1-123-356-00	ELECT	10MF 20% 25V	D17	8-719-911-19	DIODE ISS119	
C58	1-123-379-00	ELECT	0.47MF 20% 50V	D18	8-719-109-89	DIODE RD5.6ES-B2	
C59	1-130-734-00	FILM	0.0068MF 5% 50V	D20	8-719-200-02	DIODE 10E-2	
C60	1-102-228-00	CERAMIC	470PF 10% 500V	D21	8-719-300-07	DIODE RB406N	
C61	1-102-228-00	CERAMIC	470PF 10% 500V	D22	8-759-157-40	IC UPC574J	
C62	1-102-228-00	CERAMIC	470PF 10% 500V	D23	8-719-911-19	DIODE ISS119	
C63	1-102-228-00	CERAMIC	470PF 10% 500V	D24	8-719-100-58	DIODE RD10EB3	
C64	1-124-024-00	ELECT	4.7MF 20% 350V	D25	8-719-911-19	DIODE ISS119	
C65	1-124-024-00	ELECT	4.7MF 20% 350V	D26	8-719-003-08	THYRISTOR CR3CM-8	
C66	1-162-117-00	CERAMIC	100PF 10% 500V	D27	8-719-981-00	DIODE ERB81-004	
C67	1-162-117-00	CERAMIC	100PF 10% 500V	D28	8-719-981-00	DIODE ERB81-004	
C68	1-162-117-00	CERAMIC	100PF 10% 500V	D29	8-719-981-00	DIODE ERB81-004	
C69	1-124-562-11	ELECT	47MF 20% 200V	D30	8-719-981-00	DIODE ERB81-004	
C70	1-124-171-00	ELECT	100MF 20% 160V	D31	8-719-300-33	DIODE RU-3AM	
C71	1-162-117-00	CERAMIC	100PF 10% 500V	D32	8-719-300-33	DIODE RU-3AM	
C72	1-124-562-11	ELECT	47MF 20% 200V				<u>CONNECTOR</u>
C73	1-124-171-00	ELECT	100MF 20% 160V				
C74	1-124-122-11	ELECT	100MF 20% 16V				
C75	1-124-122-11	ELECT	100MF 20% 16V				
C76	A1-162-599-12	CERAMIC	0.0047MF 20% 400V	GA1	1-506-348-XX	PIN, CONNECTOR 3P	
C77	A1-162-599-12	CERAMIC	0.0047MF 20% 400V	GA2	*1-506-371-00	PIN, CONNECTOR 2P	
C78	A1-162-599-12	CERAMIC	0.0047MF 20% 400V	GA3	1-508-768-00	PIN, CONNECTOR (5MM PITCH) 6P	
C79	A1-162-599-12	CERAMIC	0.0047MF 20% 400V	GA4	*1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P	
C80	A1-125-658-11	ELECT	560MF 20% 250V	GA5	*1-566-055-11	PIN, CONNECTOR 3P	
C81	1-125-658-11	ELECT	560MF 20% 250V	GA6	*1-566-055-11	PIN, CONNECTOR 3P	
C82	1-123-369-00	ELECT	4.7MF 20% 25V	GA7	*1-566-058-11	PIN, CONNECTOR 6P	
C83	1-101-004-00	CERAMIC	0.01MF 50V	GA8	*1-566-057-11	PIN, CONNECTOR 5P	
C84	A1-136-311-11	FILM	0.47MF 20% 300V				<u>IC</u>
C85	A1-162-599-12	CERAMIC	0.0047MF 20% 400V				
C86	A1-162-599-12	CERAMIC	0.0047MF 20% 400V	IC1	1-806-805-11	IC MC5433	
C87	A1-162-599-12	CERAMIC	0.0047MF 20% 400V	IC2	8-759-904-94	IC TL494CN	
C88	A1-162-599-12	CERAMIC	0.0047MF 20% 400V	IC3	8-759-904-94	IC TL494CN	
C89	A1-136-311-11	FILM	0.47MF 20% 300V				<u>COIL</u>
C90	1-136-171-00	FILM	0.033MF 5% 50V				
C91	1-162-599-12	CERAMIC	0.0047MF 20% 400V (BVM-2010P/PD ONLY)	L3	1-459-643-11	COIL, CHOKE 525UH	
C92	1-136-171-00	FILM	0.033MF 5% 50V	L4	1-459-643-11	COIL, CHOKE 525UH	
C93	1-162-599-12	CERAMIC	0.0047MF 20% 400V (BVM-2010P/PD ONLY)	L5	1-459-643-11	COIL, CHOKE 525UH	
C94	1-102-038-00	CERAMIC	0.001MF 500V	L6	1-459-643-11	COIL, CHOKE 525UH	
				L7	1-459-207-00	COIL, CORE	
				L8	1-459-644-11	COIL, CHOKE 2.9MMH	

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The components identified by shading and mark Δ are critical for safety.
Replace only with part number specified.

- The components identified by in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark		
L9	1-459-645-11	COIL, CHOKE 20MMH		R39	1-249-413-11	CARBON	470 5% 1/4W		
L10	1-421-329-00	COIL, CHOKE		R40	1-215-453-00	METAL	22K 1% 1/4W		
L11	1-421-329-00	COIL, CHOKE		R41	1-249-425-11	CARBON	4.7K 5% 1/4W		
L12	1-421-329-00	COIL, CHOKE		R42	1-215-437-00	METAL	4.7K 1% 1/4W		
L13	1-421-329-00	COIL, CHOKE		R43	1-215-435-00	METAL	3.9K 1% 1/4W		
L14	1-421-329-00	COIL, CHOKE		R44	1-215-427-00	METAL	1.8K 1% 1/4W		
L15	1-421-329-00	COIL, CHOKE		R45	1-247-713-11	CARBON	1K 5% 1/4W		
L16	1-421-329-00	COIL, CHOKE		R46	1-249-417-11	CARBON	1K 5% 1/4W		
L17	A1-421-590-11	TRANSFORMER, LINE FILTER		R47	1-216-995-11	METAL	820 1% 10W		
L18	A1-421-590-11	TRANSFORMER, LINE FILTER		R48	1-215-866-11	METAL OXIDE	330 5% 1W F		
<u>TRANSISTOR</u>									
Q1	8-729-301-76	TRANSISTOR STR8124-R		<input checked="" type="checkbox"/> R52	A	METAL OXIDE	2W F		
Q2	8-729-301-76	TRANSISTOR STR8124-R		<input checked="" type="checkbox"/> R53	A	METAL	1/4W		
Q3	8-729-140-96	TRANSISTOR 2SD774-34		R54	1-215-901-00	METAL OXIDE	33K 5% 2W F		
Q4	8-729-140-96	TRANSISTOR 2SD774-34		R55	1-215-426-00	METAL	1.6K 1% 1/4W		
Q5	8-729-140-96	TRANSISTOR 2SD774-34		R60	1-249-420-11	CARBON	1.8K 5% 1/4W		
Q6	8-729-140-96	TRANSISTOR 2SD774-34		R61	1-249-420-11	CARBON	1.8K 5% 1/4W		
Q7	8-729-140-97	TRANSISTOR 2SB734-5		R62	1-249-429-11	CARBON	10K 5% 1/4W		
Q8	8-729-119-78	TRANSISTOR 2SC2785-HFE		R64	1-249-426-11	CARBON	5.6K 5% 1/4W		
Q9	8-729-119-78	TRANSISTOR 2SC2785-HFE		R65	1-215-437-00	METAL	4.7K 1% 1/4W		
Q10	8-729-313-42	TRANSISTOR 2SD1134-C		R66	1-215-453-00	METAL	22K 1% 1/4W		
Q11	8-729-119-76	TRANSISTOR 2SA1175-HFE		<input checked="" type="checkbox"/> R67	A	METAL	1/2W		
Q12	8-729-140-96	TRANSISTOR 2SD774-34		<input checked="" type="checkbox"/> R68	A	METAL	1/4W		
Q13	8-729-119-78	TRANSISTOR 2SC2785-HFE		R74	1-215-889-00	METAL OXIDE	330 5% 2W F		
Q14	8-729-119-78	TRANSISTOR 2SC2785-HFE		R77	1-215-433-00	METAL	3.3K 1% 1/4W		
<u>RESISTOR</u>									
R1	1-215-857-11	METAL OXIDE	10 5% 1W F	R78	1-215-433-00	METAL	3.3K 1% 1/4W		
R2	1-215-857-11	METAL OXIDE	10 5% 1W F	R80	1-210-643-35	SOLID	820K 10% 1/2W		
R3	1-247-715-11	CARBON	1.5K 5% 1/4W	R81	1-215-461-00	METAL	47K 1% 1/4W		
R4	1-215-857-11	METAL OXIDE	10 5% 1W F	R82	1-215-461-00	METAL	47K 1% 1/4W		
R5	1-215-857-11	METAL OXIDE	10 5% 1W F	R83	1-215-461-00	METAL	47K 1% 1/4W		
R6	1-249-447-11	CARBON	1 5% 1/4W F	R84	1-215-459-00	METAL	39K 1% 1/4W		
R7	1-247-692-11	CARBON	22 5% 1/4W	R85	1-215-449-00	METAL	15K 1% 1/4W		
R8	1-249-418-11	CARBON	1.2K 5% 1/4W	R86	1-215-437-00	METAL	4.7K 1% 1/4W		
R9	1-249-382-11	CARBON	1.2 5% 1/4W F	R87	1-249-405-11	CARBON	100 5% 1/4W		
R10	1-249-447-11	CARBON	1 5% 1/4W F	R88	1-249-433-11	CARBON	22K 5% 1/4W		
R11	1-247-692-11	CARBON	22 5% 1/4W	R89	1-249-429-11	CARBON	10K 5% 1/4W		
R12	1-249-418-11	CARBON	1.2K 5% 1/4W	R90	1-249-429-11	CARBON	10K 5% 1/4W		
R13	1-215-866-11	METAL OXIDE	330 5% 1W F	R91	1-249-429-11	CARBON	10K 5% 1/4W		
R14	1-247-700-11	CARBON	100 5% 1/4W	R92	1-217-295-11	WIREWOUND	5.6 10% 5W F		
R15	1-247-709-11	CARBON	510 5% 1/4W	R93	1-215-886-11	METAL OXIDE	100 5% 2W F		
R16	1-247-709-11	CARBON	510 5% 1/4W	R94	1-205-538-00	WIREWOUND	4.7 10% 10W		
R17	1-247-700-11	CARBON	100 5% 1/4W	R95	1-215-904-11	METAL OXIDE	100K 5% 2W F		
R18	1-249-425-11	CARBON	4.7K 5% 1/4W	R96	1-215-904-11	METAL OXIDE	100K 5% 2W F		
R19	1-249-419-11	CARBON	1.5K 5% 1/4W	R97	1-215-904-11	METAL OXIDE	100K 5% 2W F		
R20	1-247-838-00	CARBON	2K 5% 1/4W	R98	1-215-904-11	METAL OXIDE	100K 5% 2W F		
<u>VARIABLE RESISTOR</u>									
R21	1-249-417-11	CARBON	1K 5% 1/4W	RV1	1-237-514-21	RES, ADJ, CERMET 500			
R22	1-249-409-11	CARBON	220 5% 1/4W	RV2	1-237-515-21	RES, ADJ, CERMET 1K			
R23	1-249-417-11	CARBON	1K 5% 1/4W	<u>RELAY</u>					
R24	1-249-421-11	CARBON	2.2K 5% 1/4W	RY1	1-515-805-11	RELAY, POWER			
R25	1-249-409-11	CARBON	220 5% 1/4W	<u>TRANSFORMER</u>					
R26	1-247-700-11	CARBON	100 5% 1/4W	T1	1-448-433-11	TRANSFORMER, CONVERTER (S.R.T.)			
R27	1-247-713-11	CARBON	1K 5% 1/4W	T2	1-447-105-11	TRANSFORMER, DRIVE			
R28	1-247-713-11	CARBON	1K 5% 1/4W	T3	1-421-624-12	TRANSFORMER, CURRENT			
R29	1-247-700-11	CARBON	100 5% 1/4W	T4	1-447-426-11	TRANSFORMER, CONVERTER			
R30	1-215-866-11	METAL OXIDE	100 5% 2W F	T5	1-448-432-11	TRANSFORMER, CONVERTER (S.R.T.)			
R31	1-215-886-11	METAL OXIDE	100 5% 2W F	T6	1-447-105-11	TRANSFORMER, DRIVE			
R32	1-215-886-11	METAL OXIDE	100 5% 2W F	T7	1-421-624-12	TRANSFORMER, CURRENT			
R33	1-247-697-11	CARBON	56 5% 1/4W F	<u>THERMISTOR</u>					
R34	1-247-697-11	CARBON	56 5% 1/4W F	TH1	A1-800-820-12	THERMISTOR, POWER			
R35	1-215-863-11	METAL OXIDE	100 5% 1W F	THP1	A1-806-887-12	THERMISTOR (POSITIVE)			
R36	1-249-425-11	CARBON	4.7K 5% 1/4W	THP2	A1-800-686-33	THERMISTOR (POSITIVE)			
R37	1-249-420-11	CARBON	1.8K 5% 1/4W						
R38	1-249-429-11	CARBON	10K 5% 1/4W						



GB **GC** **HA**

Ref.No	Part No.	Description	Remark
	*1-617-884-11	GB BOARD	*****

CAPACITOR

C1	1-123-380-00	ELECT	1MF	20%	50V
C2	1-123-380-00	ELECT	1MF	20%	50V

DIODE

D1	8-719-911-19	DIODE ISS119
D2	8-719-110-08	DIODE RD8.2ES-B2
D3	8-719-911-19	DIODE ISS119
D4	8-719-911-19	DIODE ISS119
D5	8-719-911-19	DIODE ISS119
D6	8-719-110-08	DIODE RD8.2ES-B2
D7	8-719-812-41	DIODE TLR124
D8	8-719-911-19	DIODE ISS119
D9	8-719-911-19	DIODE ISS119
D10	8-719-812-41	DIODE TLR124
D11	8-719-110-08	DIODE RD8.2ES-B2
D12	8-719-911-19	DIODE ISS119
D13	8-719-911-19	DIODE ISS119
D14	8-719-911-19	DIODE ISS119
D15	8-719-911-19	DIODE ISS119
D16	8-719-911-19	DIODE ISS119
D17	8-719-110-08	DIODE RD8.2ES-B2
D18	8-719-911-19	DIODE ISS119
D19	8-719-911-19	DIODE ISS119

CONNECTOR

GA1	*1-506-603-11	PLUG, L TYPE (2.0MM PITCH) 10P
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TRANSISTOR

Q1	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q3	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q4	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q5	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q6	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q7	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q8	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q9	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q10	8-729-119-78	TRANSISTOR 2SC2785-HFE

RESISTOR

R1	1-249-427-11	CARBON	6.8K	5%	1/4W
R2	1-249-428-11	CARBON	8.2K	5%	1/4W
R3	1-249-429-11	CARBON	10K	5%	1/4W
R4	1-249-427-11	CARBON	6.8K	5%	1/4W
R5	1-249-420-11	CARBON	1.8K	5%	1/4W
R6	1-249-427-11	CARBON	6.8K	5%	1/4W
R7	1-249-420-11	CARBON	1.8K	5%	1/4W
R8	1-249-429-11	CARBON	10K	5%	1/4W
R9	1-249-427-11	CARBON	6.8K	5%	1/4W
R10	1-249-428-11	CARBON	8.2K	5%	1/4W
R11	1-249-424-11	CARBON	3.9K	5%	1/4W
R12	1-249-421-11	CARBON	2.2K	5%	1/4W
R13	1-249-425-11	CARBON	4.7K	5%	1/4W
R14	1-249-421-11	CARBON	2.2K	5%	1/4W
R15	1-249-424-11	CARBON	3.9K	5%	1/4W
R16	1-249-421-11	CARBON	2.2K	5%	1/4W
R17	1-249-425-11	CARBON	4.7K	5%	1/4W
R18	1-249-421-11	CARBON	2.2K	5%	1/4W
R19	1-249-429-11	CARBON	10K	5%	1/4W
R20	1-249-429-11	CARBON	10K	5%	1/4W

Ref.No	Part No.	Description	Remark
R21	1-249-429-11	CARBON	10K 5% 1/4W
R22	1-249-423-11	CARBON	3.3K 5% 1/4W
R23	1-249-423-11	CARBON	3.3K 5% 1/4W
R24	1-249-429-11	CARBON	10K 5% 1/4W
R25	1-249-429-11	CARBON	10K 5% 1/4W

*1-617-885-11	GC BOARD
*****	*****

CAPACITOR

C1	1-123-330-00	ELECT	22MF 20% 25V
C2	1-123-330-00	ELECT	22MF 20% 25V
C3	1-123-330-00	ELECT	22MF 20% 25V
C4	1-123-330-00	ELECT	22MF 20% 25V
C5	1-123-330-00	ELECT	22MF 20% 25V
C6	1-123-330-00	ELECT	22MF 20% 25V
C7	1-123-330-00	ELECT	22MF 20% 25V
C8	1-123-330-00	ELECT	22MF 20% 25V
C9	1-123-330-00	ELECT	22MF 20% 25V
C12	1-101-004-00	CERAMIC	0.01MF 50V
C14	1-101-004-00	CERAMIC	0.01MF 50V
C16	1-101-004-00	CERAMIC	0.01MF 50V
C17	1-101-004-00	CERAMIC	0.01MF 50V
C18	1-101-004-00	CERAMIC	0.01MF 50V

CONNECTOR

GC1	*1-566-044-11	PIN, CONNECTOR 5P
GC2	*1-566-057-11	PIN, CONNECTOR 5P
GC3	*1-566-044-11	PIN, CONNECTOR 5P

IC

IC1	8-759-929-65	IC LM7912CT
IC2	8-759-929-65	IC LM7912CT
IC3	8-759-929-62	IC LM7812CT
IC4	8-759-929-62	IC LM7812CT

*1-617-890-11	HA BOARD
*****	*****

CONNECTOR

HA1	*1-566-055-11	PIN, CONNECTOR 3P
HA2	*1-566-056-11	PIN, CONNECTOR 4P
HA3	*1-566-064-11	PIN, CONNECTOR 12P
HA4	*1-566-054-11	PIN, CONNECTOR 2P

RESISTOR

R1	1-247-814-11	CARBON	200	5%	1/4W
R2	1-215-469-00	METAL	100K	1%	1/4W

VARIABLE RESISTOR

RV1	1-237-519-21	RES, ADJ, CERMET 20K
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SWITCH

S1	1-570-565-11	SWITCH, PUSH (10 KEY)
S2	1-570-565-11	SWITCH, PUSH (10 KEY)
S3	1-570-565-11	SWITCH, PUSH (10 KEY)
S4	1-570-565-11	SWITCH, PUSH (10 KEY)
S5	1-570-565-11	SWITCH, PUSH (10 KEY)
S6	1-570-565-11	SWITCH, PUSH (10 KEY)
S7	1-570-565-11	SWITCH, PUSH (10 KEY)
S8	1-570-565-11	SWITCH, PUSH (10 KEY)
S9	1-570-565-11	SWITCH, PUSH (10 KEY)

HA HB HC HD HE

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>		<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>							
S10	1-570-565-11	SWITCH, PUSH (10 KEY)			RV11	1-237-520-21	RES, ADJ, CERMET 50K								

*1-617-886-11 HB BOARD															

1-570-568-11	SWITCH, PUSH (4 KEY)				S8	1-570-509-11	SWITCH, TOGGLE								
1-570-569-11	SWITCH, PUSH (3 KEY)				S9	1-570-509-11	SWITCH, TOGGLE								
<u>CAPACITOR</u>															
C1	1-124-034-51	ELECT	33MF	20%	16V	S10	1-570-509-11	SWITCH, TOGGLE							
C2	1-124-034-51	ELECT	33MF	20%	16V	S11	1-570-510-11	SWITCH, TOGGLE							
C3	1-101-004-00	CERAMIC	0.01MF		50V	S12	1-570-509-11	SWITCH, TOGGLE							
C4	1-101-004-00	CERAMIC	0.01MF		50V	S13	1-570-509-11	SWITCH, TOGGLE							
C5	1-101-004-00	CERAMIC	0.01MF		50V	S14	1-570-512-11	SWITCH, TOGGLE							
C6	1-101-004-00	CERAMIC	0.01MF		50V	S15	1-570-509-11	SWITCH, TOGGLE							
C7	1-101-004-00	CERAMIC	0.01MF		50V	*****									
<u>DIODE</u>															
D1	8-719-938-68	DIODE GL3HY8			SW1	1-570-567-21	SWITCH, PUSH (2 KEY)								
D2	8-719-938-68	DIODE GL3HY8			SW2	1-570-567-21	SWITCH, PUSH (2 KEY)								
D3	8-719-938-68	DIODE GL3HY8			SW3	1-570-567-11	SWITCH, PUSH (2 KEY)								
D4	8-719-938-68	DIODE GL3HY8			SW4	1-570-567-11	SWITCH, PUSH (2 KEY)								
D5	8-719-812-43	DIODE TLG124A			*****										
D6	8-719-812-43	DIODE TLG124A			*1-617-888-11 HD BOARD										
D7	8-719-812-43	DIODE TLG124A			*****										
<u>CONNECTOR</u>															
HB1	*1-566-064-11	PIN, CONNECTOR 12P			BVM-2010P ONLY, Serial No. upto 2,001,080										
HB2	*1-566-062-11	PIN, CONNECTOR 10P			BVM-2010PD ONLY, Serial No. upto 2,000,042										
HB3	*1-566-060-11	PIN, CONNECTOR 8P			BVM-2010PM ONLY, Serial No. upto 2,000,003.										
HB4	*1-566-064-11	PIN, CONNECTOR 12P													
HB5	*1-566-058-11	PIN, CONNECTOR 6P													
HB6	*1-566-064-11	PIN, CONNECTOR 12P			*4-026-910-00 HOLDER, LED										
<u>RESISTOR</u>															
R1	1-215-469-00	METAL	100K	1%	1/4W	D1	8-719-812-42	DIODE TLY124A							
R2	1-215-469-00	METAL	100K	1%	1/4W	D2	8-719-812-41	DIODE TLR124A							
R3	1-215-469-00	METAL	100K	1%	1/4W	<u>RESISTOR</u>									
R4	1-215-469-00	METAL	100K	1%	1/4W	R1	1-215-465-00	METAL	68K	1%	1/6W				
R5	1-215-469-00	METAL	100K	1%	1/4W	R2	1-215-451-00	METAL	18K	1%	1/6W				
R6	1-215-469-00	METAL	100K	1%	1/4W	R3	1-215-469-00	METAL	100K	1%	1/6W				
R7	1-215-469-00	METAL	100K	1%	1/4W	R4	1-215-469-00	METAL	100K	1%	1/6W				
R8	1-215-469-00	METAL	100K	1%	1/4W	R5	1-249-425-11	CARBON	4.7K	5%	1/4W				
R9	1-215-469-00	METAL	100K	1%	1/4W	<u>VARIABLE RESISTOR</u>									
R10	1-215-469-00	METAL	100K	1%	1/4W	RV1	1-230-788-71	RES, VAR, CERMET 20K							
R11	1-215-469-00	METAL	100K	1%	1/4W	RV2	1-230-788-71	RES, VAR, CERMET 20K							
R12	1-249-425-11	CARBON	4.7K	5%	1/4W	RV3	1-230-788-71	RES, VAR, CERMET 20K							
R13	1-249-423-11	CARBON	3.3K	5%	1/4W	RV4	1-230-788-71	RES, VAR, CERMET 20K							
R15	1-249-423-11	CARBON	3.3K	5%	1/4W	<u>VARIABLE RESISTOR</u>									
R16	1-249-423-11	CARBON	3.3K	5%	1/4W	S1	1-570-566-11	SWITCH, PUSH (4 KEY)							
R17	1-249-423-11	CARBON	3.3K	5%	1/4W	S2	1-570-566-11	SWITCH, PUSH (4 KEY)							
<u>RESISTOR</u>															
S3															
S4															

*1-618-814-11 HE BOARD															

<u>CAPACITOR</u>															
C1															
C5															
C6															
C7															

HE **HF** **HG** **HH** **PA**

Ref.No	Part No.	Description	Remark
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DIODE

D1	8-719-109-89	DIODE RD5.6ES-B2
D2	8-719-109-89	DIODE RD5.6ES-B2
D3	8-719-109-89	DIODE RD5.6ES-B2
D4	8-719-109-89	DIODE RD5.6ES-B2
D5	8-719-109-89	DIODE RD5.6ES-B2
D6	8-719-109-89	DIODE RD5.6ES-B2
D7	8-719-109-89	DIODE RD5.6ES-B2
D8	8-719-110-36	DIODE RD13ES-B2
D9	8-719-110-36	DIODE RD13ES-B2
D10	8-719-110-36	DIODE RD13ES-B2
D11	8-719-110-36	DIODE RD13ES-B2

CONNECTOR

HE1	*1-566-065-31	PIN, CONNECTOR 13P
HE2	*1-566-059-11	PIN, CONNECTOR 7P
HE3	*1-566-054-11	PIN, CONNECTOR 2P
HE4	*1-566-064-11	PIN, CONNECTOR 12P

RESISTOR

R1	1-247-887-00	CARBON	220K	5%	1/4W
R2	1-247-889-00	CARBON	270K	5%	1/4W
R10	1-247-700-11	CARBON	100	5%	1/4W
R11	1-247-700-11	CARBON	100	5%	1/4W
R12	1-247-700-11	CARBON	100	5%	1/4W
R13	1-247-700-11	CARBON	100	5%	1/4W
R14	1-247-700-11	CARBON	100	5%	1/4W
R15	1-247-700-11	CARBON	100	5%	1/4W
R16	1-247-700-11	CARBON	100	5%	1/4W

SWITCH

S1	1-554-724-11	SWITCH, PUSH (1 KEY)
S2	1-554-724-11	SWITCH, PUSH (1 KEY)
S3	1-554-724-11	SWITCH, PUSH (1 KEY)
S4	1-554-724-11	SWITCH, PUSH (1 KEY)
S5	1-554-724-11	SWITCH, PUSH (1 KEY)

*1-623-001-11 HF BOARD

CONNECTOR

HF1	1-562-221-71	RECEPTACLE, CONNECTOR 12P
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*1-627-681-11 HG BOARD

(BVM-2010P ONLY. Serial No. 2,001,081 and higher
 BVM-2010PM ONLY. Serial No. 2,000,004 and higher
 BVM-2010PD ONLY. Serial No. 2,000,042 and higher
 BVM-2010PMD ONLY. Serial No. 2,000,001 and higher)

7-682-547-09 SCREW BVTT 3X6 (S)

DIODE

D1	8-719-938-68	DIODE GL3HY8
D2	8-719-812-41	DIODE TLR124

RESISTOR

R1	1-215-465-00	METAL	68K	1%	1/4W
R2	1-215-451-00	METAL	18K	1%	1/4W
R3	1-215-469-00	METAL	100K	1%	1/4W
R4	1-215-469-00	METAL	100K	1%	1/4W
R5	1-249-425-11	CARBON	4.7K	5%	1/4W

Ref.No	Part No.	Description	Remark
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SWITCH

SW1	1-570-566-11	SWITCH, PUSH (4 KEY)
SW2	1-570-566-11	SWITCH, PUSH (4 KEY)
SW3	1-570-566-11	SWITCH, PUSH (4 KEY)
SW4	1-570-566-11	SWITCH, PUSH (4 KEY)

*1-627-682-11 HH BOARD

(BVM-2010P ONLY. Serial No. 2,001,081 and higher
 BVM-2010PM ONLY. Serial No. 2,000,004 and higher
 BVM-2010PD ONLY. Serial No. 2,000,042 and higher
 BVM-2010PMD ONLY. Serial No. 2,000,001 and higher)

CONNECTOR

HH1	1-566-614-11	PLUG (L TYPE) 3P
HH2	1-566-614-11	PLUG (L TYPE) 3P
HH3	1-566-614-11	PLUG (L TYPE) 3P
HH4	1-566-614-11	PLUG (L TYPE) 3P

VARIABLE RESISTOR

RV1	1-238-332-11	RES, VAR, CARBON 20K
RV2	1-238-332-11	RES, VAR, CARBON 20K
RV3	1-238-332-11	RES, VAR, CARBON 20K
RV4	1-238-332-11	RES, VAR, CARBON 20K

*A-1394-128-A PA BOARD, COMPLETE

7-682-548-04 SCREW P 3X8

CAPACITOR

C101	1-124-046-00	ELECT	10MF	20%	160V
C102	1-124-910-11	ELECT	47MF	20%	25V
C103	1-123-024-21	ELECT	33MF	20%	160V
C104	1-136-171-00	FILM	0.33MF	5%	50V
C105	1-108-700-11	MYLAR	0.047MF	10%	200V
C106	1-108-700-11	MYLAR	0.047MF	10%	200V
C107	1-102-030-00	CERAMIC	330PF	10%	500V
C108	1-136-072-00	FILM	0.0063MF	3%	2KV
C109	1-161-753-00	CERAMIC	470PF	10%	3KV
C110	1-162-114-00	CERAMIC	0.0047MF	20%	2KV
C111	1-136-601-11	FILM	0.01MF	10%	630V
C112	1-136-557-11	FILM	0.0033MF	5%	630V
C113	1-136-173-00	FILM	0.47MF	5%	50V
C116	1-123-330-00	ELECT	22MF	20%	16V
C117	1-124-910-11	ELECT	47MF	20%	16V
C118	1-102-973-00	CERAMIC	100PF	5%	50V
C119	1-108-796-11	MYLAR	0.0022MF	5%	50V
C120	1-123-356-00	ELECT	10MF	20%	16V
C121	1-102-074-00	CERAMIC	0.001MF	10%	50V
C122	1-136-165-00	FILM	0.1MF	5%	50V
C123	1-136-169-30	FILM	0.22MF	5%	50V
C124	1-136-111-00	FILM	1MF	5%	200V
C125	1-136-169-00	FILM	0.22MF	5%	50V
C126	1-102-030-00	CERAMIC	330PF	10%	500V
C127	1-130-736-11	FILM	0.01MF	5%	50V
C128	1-130-994-11	FILM	0.033MF	5%	50V
C129	1-123-369-00	ELECT	4.7MF	20%	25V
C130	1-102-074-00	CERAMIC	0.001MF	10%	50V
C131	1-136-153-00	FILM	0.01MF	5%	50V
C132	1-101-004-00	CERAMIC	0.01MF	5%	50V
C201	1-108-634-11	MYLAR	0.047MF	10%	100V

The components identified by shading and mark  are critical for safety.
Replace only with part number specified.

- The components identified by  in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

PA

PA PB QA QB

• The components identified by **☒** in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

The components identified by shading and mark **▲** are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark			Ref.No	Part No.	Description	Remark					
R211	1-249-429-11	CARBON	10K	5%	1/4W		*1-617-895-11	QA BOARD	*****					
R212	1-249-433-11	CARBON	22K	5%	1/4W									
R213	1-249-415-11	CARBON	680	5%	1/4W									
R214	1-249-429-11	CARBON	10K	5%	1/4W									
R220	1-215-455-00	METAL	27K	1%	1/6W									
R221	1-215-437-00	METAL	4.7K	1%	1/6W									
☒ R222		METAL			1/6W		C1	1-108-692-11	MYLAR	0.01MF	10%	200V		
☒ R223	1-215-486-00	METAL	510K	1%	1/6W		C2	1-126-235-11	ELECT	100MF	20%	16V		
R224	1-215-471-00	METAL	120K	1%	1/6W		C3	1-101-004-00	CERAMIC	0.01MF	50V			
R225	1-215-458-00	METAL	36K	1%	1/6W		C4	1-108-692-11	MYLAR	0.01MF	10%	200V		
R226	1-215-449-00	METAL	15K	1%	1/6W		C5	1-126-235-11	ELECT	100MF	20%	16V		
☒ R227		METAL			1/6W		C6	1-101-004-00	CERAMIC	0.01MF	50V			
☒ R228		METAL			1/6W		C7	1-108-692-11	MYLAR	0.01MF	10%	200V		
R231	1-249-415-11	CARBON	680	5%	1/4W		C8	1-126-235-11	ELECT	100MF	20%	16V		
R232	1-249-429-11	CARBON	10K	5%	1/4W		C9	1-101-004-00	CERAMIC	0.01MF	50V			
R237	1-215-455-00	METAL	27K	1%	1/6W		C10	1-102-951-00	CERAMIC	15PF	5%	50V		
R238	1-215-437-00	METAL	4.7K	1%	1/6W		C11	1-102-951-00	CERAMIC	15PF	5%	50V		
☒ R239		METAL			1/6W		C12	1-102-951-00	CERAMIC	15PF	5%	50V		
R240	1-215-486-00	METAL	510K	1%	1/6W									
R241	1-215-471-00	METAL	120K	1%	1/6W									
R242	1-249-422-11	CARBON	2.7K	5%	1/4W		R1	1-215-449-00	METAL	15K	1%	1/4W		
R243	1-249-422-11	CARBON	2.7K	5%	1/4W		R2	1-215-449-00	METAL	15K	1%	1/4W		
R245	1-247-887-00	CARBON	220K	5%	1/4W		R3	1-249-439-11	CARBON	68K	5%	1/4W		
R246	1-249-422-11	CARBON	2.7K	5%	1/4W									
R247	1-249-422-11	CARBON	2.7K	5%	1/4W									
R248	1-249-399-11	CARBON	33	5%	1/4W		S1	1-570-857-11	SWITCH, SLIDE					
R249	1-249-399-11	CARBON	33	5%	1/4W		S2	1-570-857-11	SWITCH, SLIDE					
R250	1-249-411-11	CARBON	330	5%	1/4W		S3	1-570-857-11	SWITCH, SLIDE					
VARIABLE RESISTOR														
RV1	1-237-500-21	RES, ADJ, CERMET 1K					*1-618-786-11	QB BOARD	*****					
TRANSFORMER														
T1	1-437-078-00	TRANSFORMER, HORIZONTAL DRIVE												
T2	1-437-079-00	TRANSFORMER, HORIZONTAL DRIVE												
T3	1-439-384-11	LOT												

*1-617-891-11 PB BOARD														

CAPACITOR														
C1	1-130-959-00	FILM		0.047MF	10%	400V		C1	1-108-692-11	MYLAR	0.01MF	10%	200V	
C2	1-130-959-00	FILM		0.047MF	10%	400V		C2	1-126-235-11	ELECT	100MF	20%	16V	
CONNECTOR														
PB1	1-508-766-00	PIN, CONNECTOR (5MM PITCH) 4P						C3	1-101-004-00	CERAMIC	0.01MF	50V		
RESISTOR														
R1	1-215-426-00	METAL	1.6K	1%	1/4W		C4	1-108-692-11	MYLAR	0.01MF	10%	200V		
R2	1-215-438-00	METAL	5.1K	1%	1/4W		C5	1-126-235-11	ELECT	100MF	20%	16V		
R3	1-215-426-00	METAL	1.6K	1%	1/4W									
R4	1-215-438-00	METAL	5.1K	1%	1/4W									
R5	1-215-438-00	METAL	5.1K	1%	1/4W									
R6	1-215-438-00	METAL	5.1K	1%	1/4W									

SWITCH														
S1	1-570-857-11	SWITCH, SLIDE					S1	1-570-857-11	SWITCH, SLIDE					
S2	1-570-857-11	SWITCH, SLIDE					S2	1-570-857-11	SWITCH, SLIDE					
S3	1-570-857-11	SWITCH, SLIDE					S3	1-570-857-11	SWITCH, SLIDE					

QD

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark			
* A-1275-088-A QD BOARD, COMPLETE (BVM-2010PD/PMD ONLY)										

* 1-526-816-21 SOCKET, IC (DP) 24P										
<u>CAPACITOR</u>										
C1	1-102-973-00	CERAMIC	100PF	5%	50V	C663	1-101-004-00	CERAMIC	0.01MF	50V
C101	1-123-380-00	ELECT	1MF	20%	50V	C664	1-101-004-00	CERAMIC	0.01MF	50V
C103	1-101-004-00	CERAMIC	0.01MF		50V	C665	1-101-004-00	CERAMIC	0.01MF	50V
C104	1-101-004-00	CERAMIC	0.01MF		50V	C666	1-101-004-00	CERAMIC	0.01MF	50V
C201	1-123-380-00	ELECT	1MF	20%	50V	C667	1-101-004-00	CERAMIC	0.01MF	50V
C202	1-101-004-00	CERAMIC	0.01MF		50V	C668	1-101-004-00	CERAMIC	0.01MF	50V
C203	1-101-004-00	CERAMIC	0.01MF		50V	C700	1-124-120-11	ELECT	220MF	20% 16V
C204	1-101-004-00	CERAMIC	0.01MF		50V	C701	1-124-120-11	ELECT	220MF	20% 16V
C301	1-123-380-00	ELECT	1MF	20%	50V	C750	1-101-004-00	CERAMIC	0.01MF	50V
C303	1-101-004-00	CERAMIC	0.01MF		50V	C751	1-101-004-00	CERAMIC	0.01MF	50V
C304	1-101-004-00	CERAMIC	0.01MF		50V	C901	1-124-120-11	ELECT	220MF	20% 16V
C400	1-124-120-11	ELECT	220MF	20%	16V	C902	1-123-356-00	ELECT	10MF	20% 16V
C401	1-124-120-11	ELECT	220MF	20%	16V	C903	1-123-356-00	ELECT	10MF	20% 16V
C402	1-123-356-00	ELECT	10MF	20%	16V	C904	1-123-356-00	ELECT	10MF	20% 16V
<u>COMBINATION PARTS</u>										
C404	1-123-356-00	ELECT	10MF	20%	16V	CP6	1-231-405-00	RESISTOR BLOCK 1K		
C500	1-124-120-11	ELECT	220MF	20%	16V	CP7	1-231-405-00	RESISTOR BLOCK 1K		
C501	1-124-120-11	ELECT	220MF	20%	16V	CP101	1-231-405-00	RESISTOR BLOCK 1K		
C502	1-123-356-00	ELECT	10MF	20%	16V	CP201	1-231-405-00	RESISTOR BLOCK 1K		
C503	1-123-356-00	ELECT	10MF	20%	16V	CP301	1-231-405-00	RESISTOR BLOCK 1K		
<u>FERRITE BEAD RESISTOR</u>										
C504	1-123-356-00	ELECT	10MF	20%	16V	FB1	1-535-178-00	RES, FERRITE		
C600	1-124-120-11	ELECT	220MF	20%	16V	FB2	1-535-178-00	RES, FERRITE		
C601	1-124-120-11	ELECT	220MF	20%	16V	FB3	1-535-178-00	RES, FERRITE		
C602	1-123-356-00	ELECT	10MF	20%	16V	FB4	1-535-178-00	RES, FERRITE		
C603	1-123-356-00	ELECT	10MF	20%	16V	<u>IC</u>				
C604	1-123-356-00	ELECT	10MF	20%	16V	IC8	8-759-937-27	IC CXB1001G		
C605	1-123-356-00	ELECT	10MF	20%	16V	IC9	8-759-747-10	IC MB7138HSK		
C606	1-123-356-00	ELECT	10MF	20%	16V	IC11	8-759-916-12	IC SN74HC00AN		
C607	1-123-356-00	ELECT	10MF	20%	16V	IC12	8-759-916-12	IC SN74HC00AN		
C608	1-123-356-00	ELECT	10MF	20%	16V	IC13	8-759-916-20	IC SN74HC14AN		
C609	1-123-356-00	ELECT	10MF	20%	16V	IC14	8-759-232-31	IC TC74HC74AP		
C610	1-123-356-00	ELECT	10MF	20%	16V	IC14	8-759-916-29	IC SN74HC74AN		
C611	1-123-356-00	ELECT	10MF	20%	16V	IC15	8-752-304-30	IC CX23043		
C612	1-123-356-00	ELECT	10MF	20%	16V	IC16	8-759-746-57	IC HN17C64G-20		
C613	1-123-356-00	ELECT	10MF	20%	16V	IC17	8-759-514-16	SEAL, CANNNEL (IC16)		
C614	1-123-356-00	ELECT	10MF	20%	16V	IC17	8-759-916-96	IC SN74HC374AN		
C615	1-123-356-00	ELECT	10MF	20%	16V	IC18	8-759-921-17	IC SN74HC153AN		
C616	1-123-356-00	ELECT	10MF	20%	16V	IC19	8-759-918-33	IC CX20160		
C617	1-123-356-00	ELECT	10MF	20%	16V	IC20	8-752-304-30	IC CX23043		
C618	1-123-356-00	ELECT	10MF	20%	16V	IC21	8-759-746-63	IC MBM27C256-25CZ		
C619	1-123-356-00	ELECT	10MF	20%	16V	IC21	8-759-514-21	SEAL, CANNNEL (IC21)		
C620	1-123-356-00	ELECT	10MF	20%	16V	IC22	8-759-916-96	IC SN74HC374AN		
C621	1-123-356-00	ELECT	10MF	20%	16V	IC31	8-759-904-80	IC 74F04PC		
C622	1-123-356-00	ELECT	10MF	20%	16V	IC32	8-759-904-80	IC 74F04PC		
C623	1-123-356-00	ELECT	10MF	20%	16V	IC101	8-759-916-50	IC SN74HC157AN		
C624	1-123-356-00	ELECT	10MF	20%	16V	IC102	8-759-916-50	IC SN74HC157AN		
C650	1-101-004-00	CERAMIC	0.01MF		50V	IC105	8-759-916-96	IC SN74HC374AN		
C651	1-101-004-00	CERAMIC	0.01MF		50V	IC106	8-759-916-96	IC SN74HC374AN		
C652	1-101-004-00	CERAMIC	0.01MF		50V	IC107	8-759-233-05	IC TC74HC283AP		
C653	1-101-004-00	CERAMIC	0.01MF		50V	IC108	8-759-233-05	IC TC74HC283AP		
C654	1-101-004-00	CERAMIC	0.01MF		50V	IC109	8-752-031-13	IC CXA1106P		
C655	1-101-004-00	CERAMIC	0.01MF		50V	IC201	8-759-916-50	IC SN74HC157AN		
C656	1-101-004-00	CERAMIC	0.01MF		50V	IC202	8-759-916-50	IC SN74HC157AN		
C657	1-101-004-00	CERAMIC	0.01MF		50V	IC205	8-759-916-96	IC SN74HC374AN		
C658	1-101-004-00	CERAMIC	0.01MF		50V	IC206	8-759-916-96	IC SN74HC374AN		
C659	1-101-004-00	CERAMIC	0.01MF		50V	IC207	8-759-233-05	IC TC74HC283AP		
C660	1-101-004-00	CERAMIC	0.01MF		50V	IC208	8-759-233-05	IC TC74HC283AP		
C661	1-101-004-00	CERAMIC	0.01MF		50V	IC209	8-752-031-13	IC CXA1106P		
C662	1-101-004-00	CERAMIC	0.01MF		50V	IC301	8-759-916-50	IC SN74HC157AN		
						IC302	8-759-916-50	IC SN74HC157AN		
						IC303	8-759-918-33	IC CX20160		
						IC304	8-759-918-33	IC CX20160		

QD **QE**

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark				
IC305	8-759-904-87	IC 74F374PC		R206	1-215-401-11	METAL	150 1% 1/6W				
IC306	8-759-904-87	IC 74F374PC		R207	1-249-419-11	CARBON	1.5K 5% 1/4W				
IC307	8-759-906-76	IC 74F283PC		R301	1-249-405-11	CARBON	100 5% 1/4W				
IC308	8-759-906-76	IC 74F283PC		R302	1-215-425-00	METAL	1.5K 1% 1/6W				
IC309	8-752-031-13	IC CXA1106P		R303	1-215-425-00	METAL	1.5K 1% 1/6W				
<u>COIL</u>											
L4	1-410-645-31	INDUCTOR	100UH	R304	1-249-416-11	CARBON	820 5% 1/4W				
L5	1-410-645-31	INDUCTOR	100UH	R305	1-215-401-11	METAL	150 1% 1/6W				
L6	1-421-370-00	COIL, CHOKE		R306	1-215-401-11	METAL	150 1% 1/6W				
L7	1-421-370-00	COIL, CHOKE		R307	1-249-419-11	CARBON	1.5K 5% 1/4W				
L9	1-410-645-31	INDUCTOR	100UH	<u>SWITCH</u>							
<u>LOWPASS FILTER</u>											
LPF101	1-235-967-11	FILTER, LOW PASS		S1	1-553-252-00	SWITCH, ROTARY					
LPF201	1-235-967-11	FILTER, LOW PASS		***** *1-623-851-11 QE BOARD (BVM-2010PD/PMD ONLY) *****							
LPF301	1-235-968-12	FILTER, LOW PASS		*****							
<u>TRANSISTOR</u>											
Q1	8-729-900-89	TRANSISTOR DTC144ES		7-682-547-04 SCREW B 3X6							
Q101	8-729-119-76	TRANSISTOR 2SA1175-HFE		<u>CAPACITOR</u>							
Q102	8-729-119-78	TRANSISTOR 2SC2785-HFE		C41	1-123-356-00	ELECT	10MF 20% 16V				
Q201	8-729-119-76	TRANSISTOR 2SA1175-HFE		C42	1-123-356-00	ELECT	10MF 20% 16V				
Q202	8-729-119-78	TRANSISTOR 2SC2785-HFE		C43	1-123-356-00	ELECT	10MF 20% 16V				
Q301	8-729-119-76	TRANSISTOR 2SA1175-HFE		C44	1-123-356-00	ELECT	10MF 20% 16V				
Q302	8-729-119-78	TRANSISTOR 2SC2785-HFE		C45	1-123-356-00	ELECT	10MF 20% 16V				
<u>CONNECTOR</u>											
QD1	*1-566-047-11	PIN, CONNECTOR 8P		C46	1-123-356-00	ELECT	10MF 20% 16V				
QD2	*1-566-042-11	PIN, CONNECTOR 3P		C47	1-123-356-00	ELECT	10MF 20% 16V				
QD3	*1-566-056-11	PIN, CONNECTOR 4P		C48	1-123-356-00	ELECT	10MF 20% 16V				
QD4	*1-566-062-11	PIN, CONNECTOR 10P		C49	1-123-356-00	ELECT	10MF 20% 16V				
QD101	*1-566-041-11	PIN, CONNECTOR 2P		C50	1-123-356-00	ELECT	10MF 20% 16V				
QD201	*1-566-041-11	PIN, CONNECTOR 2P		C61	1-123-356-00	ELECT	10MF 20% 16V				
QD301	*1-566-041-11	PIN, CONNECTOR 2P		C62	1-123-356-00	ELECT	10MF 20% 16V				
<u>RESISTOR</u>											
R1	1-249-429-11	CARBON	10K 5% 1/4W	C63	1-123-356-00	ELECT	10MF 20% 16V				
R11	1-249-417-11	CARBON	1K 5% 1/4W	C64	1-123-356-00	ELECT	10MF 20% 16V				
R13	1-249-417-11	CARBON	1K 5% 1/4W	C65	1-123-356-00	ELECT	10MF 20% 16V				
R14	1-249-417-11	CARBON	1K 5% 1/4W	C66	1-123-356-00	ELECT	10MF 20% 16V				
R15	1-249-417-11	CARBON	1K 5% 1/4W	C81	1-101-004-00	CERAMIC	0.01MF 20% 50V				
R16	1-249-417-11	CARBON	1K 5% 1/4W	<u>COMBINATION PARTS</u>							
R17	1-249-417-11	CARBON	1K 5% 1/4W	CP41	1-231-455-00	BLOCK, CR					
R18	1-249-441-11	CARBON	100K 5% 1/4W	CP42	1-231-455-00	BLOCK, CR					
R19	1-249-429-11	CARBON	10K 5% 1/4W	CP43	1-231-455-00	BLOCK, CR					
R20	1-249-417-11	CARBON	1K 5% 1/4W	CP44	1-231-455-00	BLOCK, CR					
R21	1-249-429-11	CARBON	10K 5% 1/4W	CP45	1-231-455-00	BLOCK, CR					
R22	1-249-429-11	CARBON	10K 5% 1/4W	CP46	1-231-455-00	BLOCK, CR					
R23	1-249-429-11	CARBON	10K 5% 1/4W	CP47	1-231-455-00	BLOCK, CR					
R24	1-249-429-11	CARBON	10K 5% 1/4W	CP48	1-231-455-00	BLOCK, CR					
R31	1-249-417-11	CARBON	1K 5% 1/4W	CP49	1-231-455-00	BLOCK, CR					
R32	1-249-417-11	CARBON	1K 5% 1/4W	CP50	1-231-455-00	BLOCK, CR					
R33	1-249-417-11	CARBON	1K 5% 1/4W	<u>IC</u>							
R101	1-249-405-11	CARBON	100 5% 1/4W	IC41	8-759-001-25	IC MC10125L					
R102	1-215-425-00	METAL	1.5K 1% 1/6W	IC42	8-759-001-25	IC MC10125L					
R103	1-215-425-00	METAL	1.5K 1% 1/6W	IC43	8-759-001-25	IC MC10125L					
R104	1-249-416-11	CARBON	820 5% 1/4W	IC44	8-759-001-25	IC MC10125L					
R105	1-215-401-11	METAL	150 1% 1/6W	IC45	8-759-001-25	IC MC10125L					
R106	1-215-401-11	METAL	150 1% 1/6W	IC46	8-759-001-25	IC MC10125L					
R107	1-249-419-11	CARBON	1.5K 5% 1/4W	IC47	8-759-904-80	IC 74F04PC					
R201	1-249-405-11	CARBON	100 5% 1/4W	IC48	8-759-938-94	IC 74F158APC					
R202	1-215-425-00	METAL	1.5K 1% 1/6W	IC49	8-759-904-87	IC 74F374PC					
R203	1-215-425-00	METAL	1.5K 1% 1/6W	IC50	8-759-904-87	IC 74F374PC					
R204	1-249-416-11	CARBON	820 5% 1/4W	<u>CONNECTOR</u>							
R205	1-215-401-11	METAL	150 1% 1/6W	QE41	*1-566-056-11	PIN, CONNECTOR 4P					
				QE42	*1-566-062-11	PIN, CONNECTOR 10P					

QE **RA**

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark				
QE43	1-563-322-11	CONNECTOR,D-SUB(MOUNT TYPE)25P		C105	1-126-157-11	ELECT	10MF 20% 16V				
QE44	1-563-322-11	CONNECTOR,D-SUB(MOUNT TYPE)25P		C106	1-126-157-11	ELECT	10MF 20% 16V				

*A-1285-073-A RA BOARD, COMPLETE											

<u>CAPACITOR</u>											
C1	1-161-379-00	CERAMIC	0.01MF 30% 25V	C107	1-126-157-11	ELECT	10MF 20% 16V				
C2	1-161-379-00	CERAMIC	0.01MF 30% 25V	C108	1-126-157-11	ELECT	10MF 20% 16V				
C3	1-161-379-00	CERAMIC	0.01MF 30% 25V	C111	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C4	1-161-379-00	CERAMIC	0.01MF 30% 25V	C112	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C5	1-161-379-00	CERAMIC	0.01MF 30% 25V	C113	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C6	1-124-589-11	ELECT	47MF 20% 16V	C114	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C7	1-161-379-00	CERAMIC	0.01MF 30% 25V	C115	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C9	1-161-379-00	CERAMIC	0.01MF 30% 25V	C116	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C10	1-161-379-00	CERAMIC	0.01MF 30% 25V	C117	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C11	1-161-379-00	CERAMIC	0.01MF 30% 25V	C118	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C12	1-161-379-00	CERAMIC	0.01MF 30% 25V	C201	1-124-589-11	ELECT	47MF 20% 16V				
C13	1-161-379-00	CERAMIC	0.01MF 30% 25V	C202	1-124-589-11	ELECT	47MF 20% 16V				
C14	1-161-379-00	CERAMIC	0.01MF 30% 25V	C203	1-126-157-11	ELECT	10MF 20% 16V				
C15	1-161-379-00	CERAMIC	0.01MF 30% 25V	C204	1-126-157-11	ELECT	10MF 20% 16V				
C16	1-161-379-00	CERAMIC	0.01MF 30% 25V	C205	1-126-157-11	ELECT	10MF 20% 16V				
C17	1-161-379-00	CERAMIC	0.01MF 30% 25V	C206	1-126-157-11	ELECT	10MF 20% 16V				
C18	1-161-379-00	CERAMIC	0.01MF 30% 25V	C207	1-126-157-11	ELECT	10MF 20% 16V				
C19	1-161-379-00	CERAMIC	0.01MF 30% 25V	C208	1-126-157-11	ELECT	10MF 20% 16V				
C20	1-161-379-00	CERAMIC	0.01MF 30% 25V	C211	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C21	1-161-379-00	CERAMIC	0.01MF 30% 25V	C212	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C22	1-161-379-00	CERAMIC	0.01MF 30% 25V	C213	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C23	1-161-379-00	CERAMIC	0.01MF 30% 25V	C214	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C24	1-161-379-00	CERAMIC	0.01MF 30% 25V	C215	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C25	1-161-379-00	CERAMIC	0.01MF 30% 25V	C216	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C26	1-161-379-00	CERAMIC	0.01MF 30% 25V	C217	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C27	1-161-379-00	CERAMIC	0.01MF 30% 25V	C218	1-161-379-00	CERAMIC	0.01MF 30% 25V				
C28	1-161-379-00	CERAMIC	0.01MF 30% 25V	<u>DIODE</u>							
C29	1-161-379-00	CERAMIC	0.01MF 30% 25V	D1	8-719-911-19	DIODE ISS119					
C30	1-161-379-00	CERAMIC	0.01MF 30% 25V	D2	8-719-911-19	DIODE ISS119					
C31	1-161-379-00	CERAMIC	0.01MF 30% 25V	D3	8-719-911-19	DIODE ISS119					
C32	1-161-379-00	CERAMIC	0.01MF 30% 25V	D4	8-719-911-19	DIODE ISS119					
C33	1-161-379-00	CERAMIC	0.01MF 30% 25V	D5	8-719-911-19	DIODE ISS119					
C34	1-161-379-00	CERAMIC	0.01MF 30% 25V	D6	8-719-911-19	DIODE ISS119					
C35	1-161-379-00	CERAMIC	0.01MF 30% 25V	D7	8-719-911-19	DIODE ISS119					
C36	1-161-379-00	CERAMIC	0.01MF 30% 25V	D8	8-719-911-19	DIODE ISS119					
C37	1-161-379-00	CERAMIC	0.01MF 30% 25V	D9	8-719-911-19	DIODE ISS119					
C38	1-161-379-00	CERAMIC	0.01MF 30% 25V	D10	8-719-911-19	DIODE ISS119					
C39	1-161-379-00	CERAMIC	0.01MF 30% 25V	D11	8-719-911-19	DIODE ISS119					
C40	1-161-379-00	CERAMIC	0.01MF 30% 25V	D12	8-719-911-19	DIODE ISS119					
C41	1-161-379-00	CERAMIC	0.01MF 30% 25V	D13	8-719-911-19	DIODE ISS119					
C42	1-161-379-00	CERAMIC	0.01MF 30% 25V	D14	8-719-911-19	DIODE ISS119					
C43	1-161-379-00	CERAMIC	0.01MF 30% 25V	D15	8-719-911-19	DIODE ISS119					
C44	1-161-379-00	CERAMIC	0.01MF 30% 25V	D16	8-719-911-19	DIODE ISS119					
C45	1-161-379-00	CERAMIC	0.01MF 30% 25V	D17	8-719-911-19	DIODE ISS119					
C46	1-161-379-00	CERAMIC	0.01MF 30% 25V	D18	8-719-911-19	DIODE ISS119					
C47	1-161-379-00	CERAMIC	0.01MF 30% 25V	D19	8-719-911-19	DIODE ISS119					
C48	1-161-379-00	CERAMIC	0.01MF 30% 25V	D20	8-719-911-19	DIODE ISS119					
C49	1-124-589-11	ELECT	47MF 20% 16V	D21	8-719-911-19	DIODE ISS119					
C50	1-124-589-11	ELECT	47MF 20% 16V	D22	8-719-911-19	DIODE ISS119					
C51	1-124-589-11	ELECT	47MF 20% 16V	D23	8-719-911-19	DIODE ISS119					
C52	1-124-589-11	ELECT	47MF 20% 16V	D24	8-719-911-19	DIODE ISS119					
C53	1-124-589-11	ELECT	47MF 20% 16V	D25	8-719-911-19	DIODE ISS119					
C101	1-124-589-11	ELECT	47MF 20% 16V	D26	8-719-911-19	DIODE ISS119					
C102	1-124-589-11	ELECT	47MF 20% 16V	D27	8-719-911-19	DIODE ISS119					
C103	1-126-157-11	ELECT	10MF 20% 16V	D28	8-719-911-19	DIODE ISS119					
C104	1-126-157-11	ELECT	10MF 20% 16V	D29	8-719-911-19	DIODE ISS119					
				D30	8-719-911-19	DIODE ISS119					
				D31	8-719-911-19	DIODE ISS119					
				D32	8-719-911-19	DIODE ISS119					
				D33	8-719-911-19	DIODE ISS119					
				D34	8-719-911-19	DIODE ISS119					
				D35	8-719-911-19	DIODE ISS119					





Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
D36	8-719-911-19	DIODE 1SS119		R44	1-249-441-11	CARBON	100K 5% 1/4W
D37	8-719-911-19	DIODE 1SS119		R45	1-249-441-11	CARBON	100K 5% 1/4W
D101	8-719-110-03	DIODE RD7.5ES-B2		R46	1-249-441-11	CARBON	100K 5% 1/4W
D102	8-719-109-93	DIODE RD6.2ES-B2		R47	1-249-441-11	CARBON	100K 5% 1/4W
D201	8-719-110-03	DIODE RD7.5ES-B2		R48	1-249-441-11	CARBON	100K 5% 1/4W
D202	8-719-109-93	DIODE RD6.2ES-B2		R51	1-249-429-11	CARBON	10K 5% 1/4W
<u>IC</u>				R52	1-249-429-11	CARBON	10K 5% 1/4W
IC1	8-759-208-06	IC TC4051BP		R53	1-249-429-11	CARBON	10K 5% 1/4W
IC2	8-759-208-06	IC TC4051BP		R54	1-249-429-11	CARBON	10K 5% 1/4W
IC3	8-759-208-06	IC TC4051BP		R55	1-249-429-11	CARBON	10K 5% 1/4W
IC4	8-759-208-06	IC TC4051BP		R56	1-249-429-11	CARBON	10K 5% 1/4W
IC5	8-759-208-06	IC TC4051BP		R61	1-249-417-11	CARBON	1K 5% 1/4W
IC6	8-759-208-06	IC TC4051BP		R62	1-249-417-11	CARBON	1K 5% 1/4W
IC7	8-759-240-40	IC TC4040BP		R63	1-247-903-00	CARBON	1M 5% 1/4W
IC8	8-759-208-06	IC TC4051BP		R101	1-249-409-11	CARBON	220 5% 1/4W
IC9	8-759-990-82	IC TL082CP		R201	1-249-417-11	CARBON	1K 5% 1/4W
IC10	8-759-981-95	IC RC4558S		<u>CONNECTOR</u>			
IC11	8-759-981-95	IC RC4558S		RA1	*1-566-064-11	PIN, CONNECTOR 12P	
IC12	8-759-981-95	IC RC4558S		RA2	*1-566-064-11	PIN, CONNECTOR 12P	
<u>RESISTOR</u>				RA3	*1-566-062-11	PIN, CONNECTOR 10P	
R1	1-215-465-00	METAL	68K 1%	RA4	*1-566-047-11	PIN, CONNECTOR 8P	
R2	1-215-451-00	METAL	18K 1%	RA5	*1-566-051-11	PIN, CONNECTOR 12P	
R3	1-215-469-00	METAL	100K 1%	RA6	*1-566-059-11	PIN, CONNECTOR 7P	
R4	1-215-469-00	METAL	100K 1%	RA7	*1-566-055-11	PIN, CONNECTOR 3P	
R5	1-215-469-00	METAL	100K 1%	RA9	*1-566-060-11	PIN, CONNECTOR 8P	
				RA10	*1-566-065-11	PIN, CONNECTOR 13P	
R6	1-215-437-00	METAL	4.7K 1%	***** * * * * *			
R7	1-215-469-00	METAL	100K 1%	* A-1285-072-A RB BOARD, COMPLETE			
R8	1-249-405-11	CARBON	100 5%	***** * * * * *			
R9	1-215-469-00	METAL	100K 1%				
R10	1-215-469-00	METAL	100K 1%				
R11	1-215-469-00	METAL	100K 1%	<u>CAPACITOR</u>			
R12	1-215-469-00	METAL	100K 1%	C1	1-101-884-00	CERAMIC	56PF 5% 50V
R13	1-215-469-00	METAL	100K 1%	C2	1-102-973-00	CERAMIC	100PF 5% 50V
R14	1-215-469-00	METAL	100K 1%	C3	1-101-004-00	CERAMIC	0.01MF 50V
R15	1-249-441-11	CARBON	100K 5%	C5	1-136-153-00	FILM	0.01MF 5% 50V
R16	1-249-441-11	CARBON	100K 5%	C6	1-136-165-00	FILM	0.1MF 5% 50V
R17	1-249-441-11	CARBON	100K 5%	C7	1-136-165-00	FILM	0.1MF 5% 50V
R18	1-249-441-11	CARBON	100K 5%	C101	1-124-034-51	ELECT	33MF 20% 16V
R19	1-249-441-11	CARBON	100K 5%	C102	1-124-034-51	ELECT	33MF 20% 16V
R20	1-249-441-11	CARBON	100K 5%	C103	1-124-034-51	ELECT	33MF 20% 16V
R21	1-249-441-11	CARBON	100K 5%	C104	1-124-034-51	ELECT	33MF 20% 16V
R22	1-249-441-11	CARBON	100K 5%	C105	1-124-034-51	ELECT	33MF 20% 16V
R23	1-249-441-11	CARBON	100K 5%	C106	1-124-034-51	ELECT	33MF 20% 16V
R24	1-249-441-11	CARBON	100K 5%	C107	1-124-034-51	ELECT	33MF 20% 16V
R25	1-249-441-11	CARBON	100K 5%	C112	1-101-004-00	CERAMIC	0.01MF 50V
R26	1-249-441-11	CARBON	100K 5%	C113	1-101-004-00	CERAMIC	0.01MF 50V
R27	1-249-441-11	CARBON	100K 5%	C114	1-101-004-00	CERAMIC	0.01MF 50V
R28	1-249-441-11	CARBON	100K 5%	C115	1-101-004-00	CERAMIC	0.01MF 50V
R29	1-249-441-11	CARBON	100K 5%	C116	1-101-004-00	CERAMIC	0.01MF 50V
R30	1-249-441-11	CARBON	100K 5%	C117	1-101-004-00	CERAMIC	0.01MF 50V
R31	1-249-441-11	CARBON	100K 5%	C118	1-101-004-00	CERAMIC	0.01MF 50V
R32	1-249-441-11	CARBON	100K 5%	C119	1-101-004-00	CERAMIC	0.01MF 50V
R33	1-249-441-11	CARBON	100K 5%	C120	1-101-004-00	CERAMIC	0.01MF 50V
R34	1-249-441-11	CARBON	100K 5%	C121	1-101-004-00	CERAMIC	0.01MF 50V
R35	1-249-441-11	CARBON	100K 5%	C122	1-101-004-00	CERAMIC	0.01MF 50V
R36	1-249-441-11	CARBON	100K 5%	C123	1-101-004-00	CERAMIC	0.01MF 50V
R37	1-249-441-11	CARBON	100K 5%	C124	1-101-004-00	CERAMIC	0.01MF 50V
R38	1-249-441-11	CARBON	100K 5%	C125	1-101-004-00	CERAMIC	0.01MF 50V
R39	1-249-441-11	CARBON	100K 5%	C126	1-101-004-00	CERAMIC	0.01MF 50V
R40	1-249-441-11	CARBON	100K 5%	C127	1-101-004-00	CERAMIC	0.01MF 50V
R41	1-249-441-11	CARBON	100K 5%	C128	1-101-004-00	CERAMIC	0.01MF 50V
R42	1-249-441-11	CARBON	100K 5%	C129	1-101-004-00	CERAMIC	0.01MF 50V
R43	1-249-441-11	CARBON	100K 5%				





Ref.No	Part No.	Description			Remark
R25	1-249-429-11	CARBON	10K	5%	1/4W
R26	1-249-429-11	CARBON	10K	5%	1/4W
R27	1-249-441-11	CARBON	100K	5%	1/4W
R28	1-249-441-11	CARBON	100K	5%	1/4W
R29	1-249-441-11	CARBON	100K	5%	1/4W
R30	1-249-433-11	CARBON	22K	5%	1/4W
R31	1-249-441-11	CARBON	100K	5%	1/4W
R32	1-249-405-11	CARBON	100	5%	1/4W
R33	1-249-405-11	CARBON	100	5%	1/4W
R34	1-249-441-11	CARBON	100K	5%	1/4W
R35	1-249-422-11	CARBON	27K	5%	1/4W
R37	1-215-446-00	METAL	11K	1%	1/6W
R38	1-249-429-11	CARBON	10K	5%	1/4W
R39	1-249-433-11	CARBON	22K	5%	1/4W
R40	1-249-437-11	CARBON	47K	5%	1/4W
R45	1-249-405-11	CARBON	100	5%	1/4W
R50	1-249-417-11	CARBON	1K	5%	1/4W
R51	1-249-417-11	CARBON	1K	5%	1/4W
R101	1-249-409-11	CARBON	220	5%	1/4W
R201	1-249-417-11	CARBON	1K	5%	1/4W

CONNECTOR

RB1	* 1-566-059-11	PIN, CONNECTOR 7P
RB2	* 1-566-062-11	PIN, CONNECTOR 10P
RB4	* 1-566-060-11	PIN, CONNECTOR 8P
RB5	* 1-566-060-11	PIN, CONNECTOR 8P
RB6	* 1-566-064-11	PIN, CONNECTOR 12P
RB7	* 1-566-064-11	PIN, CONNECTOR 12P
RB8	* 1-566-062-11	PIN, CONNECTOR 10P
RB9	* 1-566-060-11	PIN, CONNECTOR 8P
RB10	* 1-566-064-11	PIN, CONNECTOR 12P
RB11	* 1-566-059-11	PIN, CONNECTOR 7P
RB12	* 1-566-059-11	PIN, CONNECTOR 7P
RB13	* 1-566-060-11	PIN, CONNECTOR 8P
RB14	* 1-566-064-11	PIN, CONNECTOR 12P
RB15	* 1-566-054-11	PIN, CONNECTOR 2P
RB16	* 1-566-054-11	PIN, CONNECTOR 2P
RB17	* 1-566-055-11	PIN, CONNECTOR 3P
RB18	* 1-566-056-11	PIN, CONNECTOR 4P
RB19	* 1-566-058-11	PIN, CONNECTOR 6P
RB20	* 1-566-058-11	PIN, CONNECTOR 6P
RB21	* 1-566-055-11	PIN, CONNECTOR 3P
RB22	* 1-566-055-11	PIN, CONNECTOR 3P

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*1-617-898-11 TA BOARD

CONNECTOR

TA1	*1-566-054-11	PIN, CONNECTOR 2P
TA2	*1-566-055-11	PIN, CONNECTOR 3P
TA3	*1-566-056-11	PIN, CONNECTOR 4P
TA4	*1-566-057-11	PIN, CONNECTOR 5P
TA5	*1-566-058-11	PIN, CONNECTOR 6P
TA6	*1-566-055-11	PIN, CONNECTOR 3P
TA7	*1-566-058-11	PIN, CONNECTOR 6P
TA8	*1-566-042-11	PIN, CONNECTOR 3P
TA9	*1-566-045-11	PIN, CONNECTOR 6P
TA10	*1-566-045-11	PIN, CONNECTOR 6P
TA11	*1-566-045-11	PIN, CONNECTOR 6P
TA12	*1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P
TA13	*1-561-337-00	CONNECTOR, MULTI
TA14	*1-561-337-00	CONNECTOR, MULTI
TA15	*1-561-337-00	CONNECTOR, MULTI

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
	*1-617-899-11	TB BOARD	

CONNECTOR

CN1	* 1-564-431-11	POST, CONNECTOR 3P
CN2	* 1-564-431-11	POST, CONNECTOR 3P
CN11	* 1-561-724-00	SOCKET, CONNECTOR 2P
CN12	* 1-561-724-00	SOCKET, CONNECTOR 2P
TB4	* 1-566-054-11	PIN, CONNECTOR 2P

TB5	*1-566-054-11	PIN, CONNECTOR 2P
TB6	*1-566-060-11	PIN, CONNECTOR 8P
TB7	*1-566-054-11	PIN, CONNECTOR 2P
TB8	*1-566-058-11	PIN, CONNECTOR 6P
TB9	*1-566-060-11	PIN, CONNECTOR 8P

TB10	*1-566-064-11	PIN, CONNECTOR 12P
TB11	*1-566-055-11	PIN, CONNECTOR 3P
TB12	*1-566-064-11	PIN, CONNECTOR 12P
TB13	*1-566-062-11	PIN, CONNECTOR 10P
TB14	*1-566-064-11	PIN, CONNECTOR 12P

TB15	* 1-566-060-11	PIN, CONNECTOR 8P
TB16	* 1-566-057-11	PIN, CONNECTOR 5P
TB17	* 1-566-057-11	PIN, CONNECTOR 5P
TB18	* 1-566-055-11	PIN, CONNECTOR 3P
TB19	* 1-566-055-11	PIN, CONNECTOR 4P

TB20	*1-566-056-11	PIN, CONNECTOR 4P
TB21	*1-566-056-11	PIN, CONNECTOR 4P
TB22	*1-566-054-11	PIN, CONNECTOR 2P
TB23	*1-566-054-11	PIN, CONNECTOR 2P
TB24	*1-566-054-11	PIN, CONNECTOR 2P

TB28	* 1-566-062-11	PIN, CONNECTOR 10P
TB31	* 1-561-337-00	CONNECTOR, MULTI
TB32	* 1-561-337-00	CONNECTOR, MULTI
TB33	* 1-561-337-00	CONNECTOR, MULTI
TB34	* 1-561-337-00	CONNECTOR, MULTI

TB35	*1-561-337-00	CONNECTOR, MULTI
TB36	*1-561-337-00	CONNECTOR, MULTI
TB37	*1-561-337-00	CONNECTOR, MULTI
TB38	*1-561-337-00	CONNECTOR, MULTI
TB39	*1-561-337-00	CONNECTOR, MULTI

RESISTOR

R100 1-249-422-11 CARBON 2.7K 5% 1/4W

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RESISTOR

R1	1-249-405-11	CARBON	100	5%	1/4W
R2	1-249-405-11	CARBON	100	5%	1/4W
R3	1-249-405-11	CARBON	100	5%	1/4W
R4	1-249-405-11	CARBON	100	5%	1/4W
R5	1-249-405-11	CARBON	100	5%	1/4W
R6	1-249-405-11	CARBON	100	5%	1/4W
R7	1-249-405-11	CARBON	100	5%	1/4W

2023 RELEASE UNDER E.O. 14176

The components identified by shading and mark Δ are critical for safety.
Replace only with part number specified.

W X B Y

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
	*1-617-897-11	W BOARD	*****			ACCESSORIES & PACKING MATERIALS	*****
		CAPACITOR				Δ 1-532-203-11 FUSE, TIME-LAG 2A/250V (BVM-2010P/PD ONLY)	
C1	1-108-692-11	MYLAR	0.01MF 10% 200V			Δ 1-532-746-11 FUSE, GLASS TUBE 4A/125V (BVM-2010PM/PMD ONLY)	
C2	1-108-692-11	MYLAR	0.01MF 10% 200V			Δ 1-532-822-11 FUSE, GLASS TUBE 1A/25V (BVM-2010PD/PMD ONLY)	
C3	1-108-692-11	MYLAR	0.01MF 10% 200V			Δ 1-590-150-11 POWER CORD (BVM-2010P/PD ONLY)	
		RESISTOR				Δ 1-551-812-11 POWER CORD (BVM-2010PM/PMD ONLY)	
R1	1-214-702-00	METAL	75 1% 1/4W			1-560-776-00 SOCKET, CONNECTOR 10P	
R2	1-214-702-00	METAL	75 1% 1/4W			2-990-242-01 HOLDER (B), PLUG	
R3	1-214-702-00	METAL	75 1% 1/4W			*4-361-988-02 BAG, PROTECTION	
		DIODE				4-378-901-01 KEY	
D1	8-719-901-49	DIODE LT-9010H				4-386-841-01 LABEL, TALLY NUMBER	
D2	8-719-901-49	DIODE LT-9010H				4-386-841-11 LABEL, TALLY NUMBER	
		DIODE				4-386-852-21 MANUAL, OPERATION & MAINTNANCE	
D1	8-719-812-43	DIODE TLG124A				*4-386-856-01 INDIVIDUAL CARTON (BVM-2010P ONLY)	
		MISCELLANEOUS	*****			*4-386-858-01 CUSHION (UPPER)	
						4-386-870-01 LABEL, DIGITAL (BVM-2010PD ONLY)	
	1-216-371-00	RES, METAL OXIDE FILM 1.5				*4-386-872-01 INDIVIDUAL CARTON (BVM-2010PD ONLY)	
	1-216-373-11	RES, METAL OXIDE FILM 2.2				*4-386-875-01 CUSHION (FRONT LOWER)	
Δ 1-237-165-12	RESISTOR ASSY, HIGH-VOLTAGE					*4-386-876-01 CUSHION (REAR LOWER)	
Δ 1-413-319-11	REGULATOR, SWITCHING (BVM-2010PD/PMD ONLY)					*4-386-878-01 INDIVIDUAL CARTON (BVM-2010PM ONLY)	
Δ 1-426-328-11	COIL, DEGAUSSING					7-700-731-03 DRIVER, VR ADJUSTMENT	
Δ 1-439-382-21	TRANSFORMER ASSY, FLY3ACK						
Δ 1-451-287-21	DEFLECTION YOKE (Y14FAA)						
1-452-032-00	MAGNET, DISC; 10MM ϕ						
1-452-094-00	MAGNET, ROTATABLE DISK; 15MM ϕ						
Δ 1-452-117-31	CRT NECK ASSY						
Δ 1-452-261-22	CRT NECK ASSY (362)						
Δ 1-453-103-32	HIGH-VOLTAGE BLOCK (HB-203 (B))						
Δ 1-532-203-11	FUSE, TIME-LAG 2A/250V (BVM-2010P/PD ONLY)						
Δ 1-532-746-11	FUSE, GLASS TUBE 4A/125V (BVM-2010PM/PMD ONLY)						
Δ 1-532-822-11	FUSE, GLASS TUBE 1A/25V (BVM-2010PD/PMD ONLY)						
S901	1-565-791-11	CONNECTOR, BNC 1P					
V901	Δ 1-570-052-12	SWITCHING, PUSH (AC POWER)(1 KEY)					
V901	A-8-733-054-05	PICTURE TUBE (M49JJP21X)					